

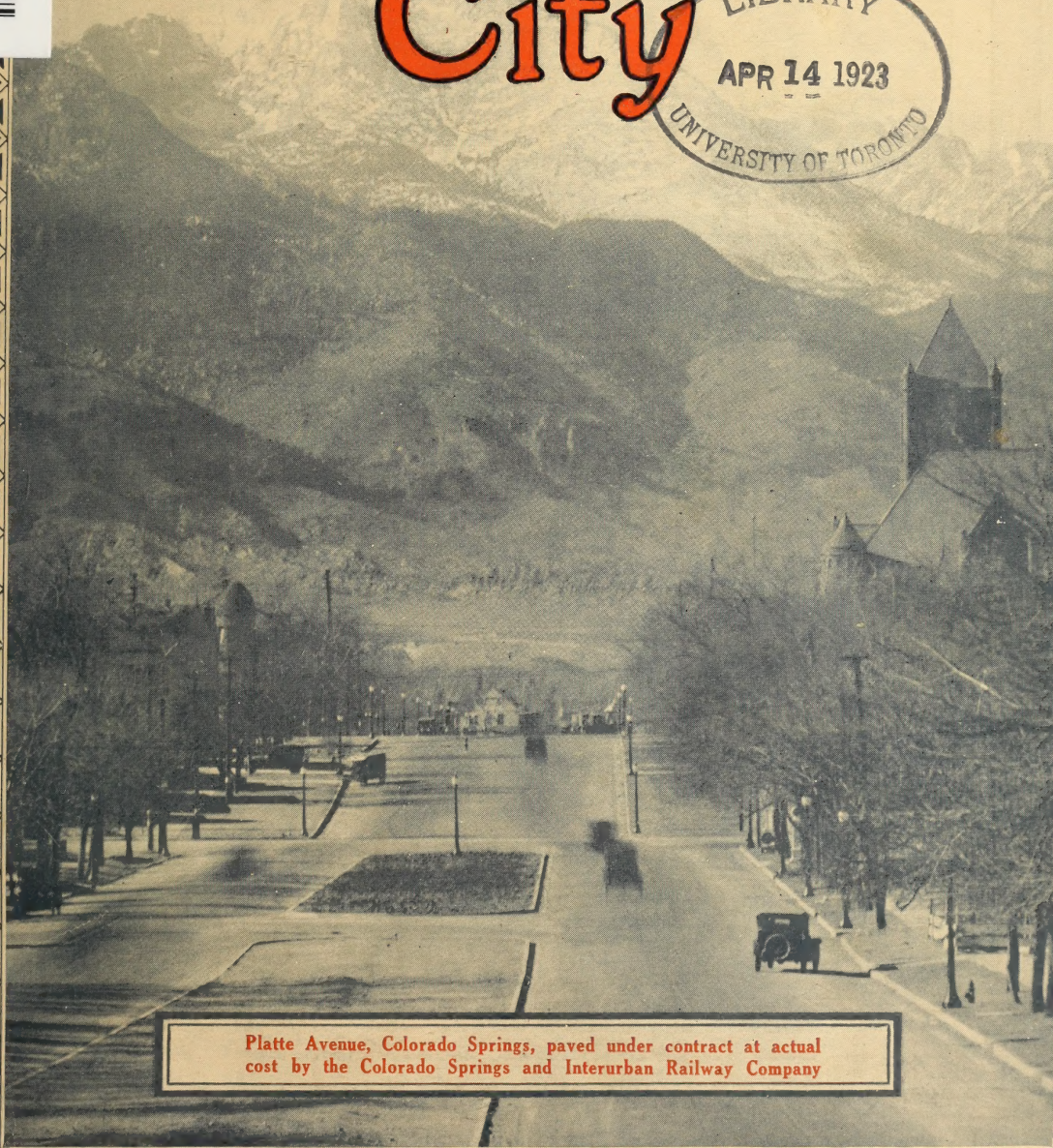
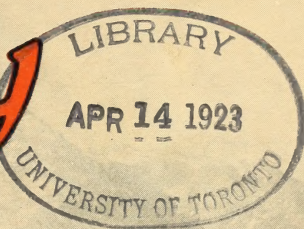
April, 1923

Vol. XXVIII No. 4
50 Cents \$4 a Year

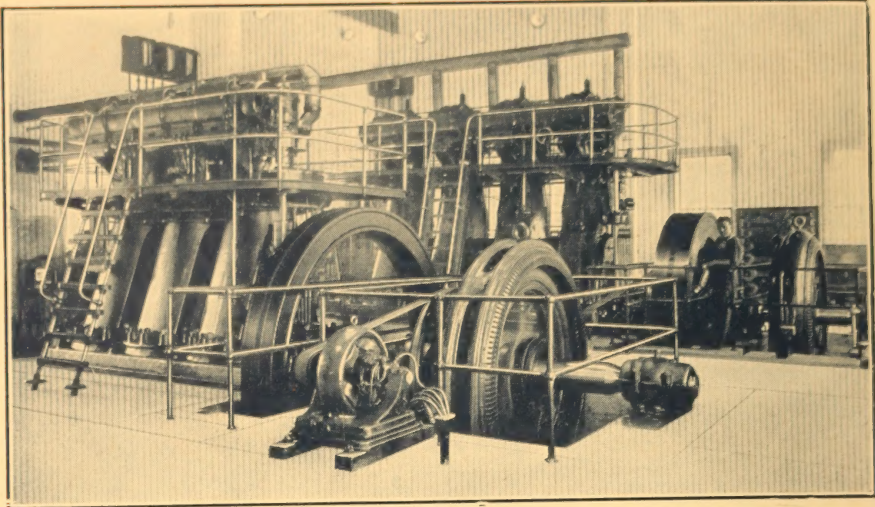


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The American City



Platte Avenue, Colorado Springs, paved under contract at actual cost by the Colorado Springs and Interurban Railway Company



One for Primary Power Led to a Second for a Standby

Operation at a loss with steam equipment caused a central station in 1918 to install a 500 horsepower Fulton Diesel. The steam equipment was kept for standby power, but comparison with the Fulton Diesel proved it still too expensive. So a second Fulton Diesel—a 585 horsepower unit—was installed in 1921 as a standby. The central station is now on a paying basis with a perfectly balanced plant.

The Fulton Diesel operates on one-third the fuel required to produce equivalent steam power. It is ideal as a standby because it entails no standby losses—starting from cold and reaching full load in less than one minute—stopping in seconds and remaining in readiness for instant service without any consumption of fuel.

One good engineer is the only attendant necessary. Behind him is the service of Fulton supervising engineers who make regular visits to Fulton installations to advise upon the most efficient methods of Diesel practice. Plant engineers interested in Fulton Diesel operation are cordially invited to St. Louis to visit our shops.

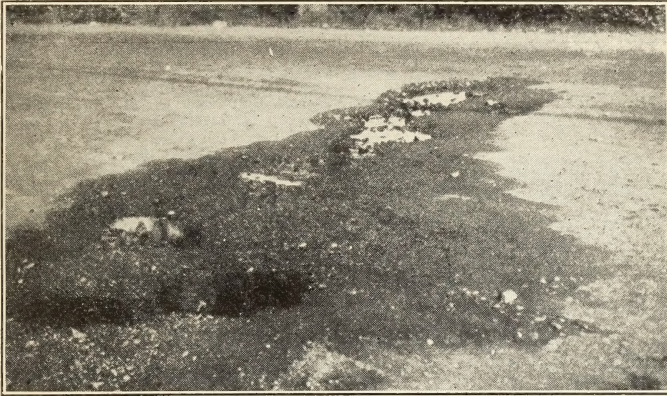
On requests from executives and engineers, our test illustrated book describing the Fulton Diesel will be mailed free and postpaid. Our staff of engineers is ready at all times to advise on any power problem—anywhere—without charge or obligation.

FULTON IRON WORKS COMPANY, ST. LOUIS, U. S. A.

Successful engine builders for 70 years.

BRANCH OFFICES: New York—82 Wall St. Dallas, Texas—Praetorian Bldg. New Orleans, La.—Hibernia Bank Bldg.
Havana, Cuba—401-402-403 Banco Nacional.

FULTON DIESEL



Street injured by leaking water mains

The penalty for installing inferior pipe for water mains will always be heavy. Aside from the loss of water and the increased cost of pumping, due to leakage, officials must consider the probability of torn-up streets and the danger of property damage.

Bell and spigot cast iron pipe properly installed is leak-proof, which is one reason why it has been the standard in water works installations for decades.

*Write for a copy of the
A. W. W. A. Specifications*

United States Cast Iron Pipe and Foundry Co.

GENERAL OFFICE: BURLINGTON, NEW JERSEY

SALES OFFICES:

Philadelphia—1421 Chestnut Street
New York—71 Broadway

Pittsburgh—Henry W. Oliver Bldg.

Buffalo—957 E. Ferry St.

Chicago—122 South Michigan Boulevard

Kansas City, Mo.—Interstate Bldg.

Cincinnati—Dixie Terminal Building
Cleveland, Ohio—1150 E. 25th St., N. E.

St. Louis—Security Building

Birmingham, Ala.—American Trust Bldg.

San Francisco—Monadnock Building

Minneapolis—Plymouth Building

Dallas, Texas—Magnolia Building

For quotations or estimates, apply to nearest sales office

Catalogs of Municipal Interest

THE AMERICAN CITY should always be mentioned when writing for this material which is furnished free of charge. Officials who check over these items each month and write for such printed matter as interests them will find this a convenient way of keeping their information files up to date.

A TONGUE-AND-GROOVE EXPANSION JOINT

Literature describing the new tongue-and-groove form of Carey Elastite expansion joint may be secured from the Philip Carey Co., 8 Wayne Ave., Lockland, Cincinnati, Ohio.

DISTINCTIVE LIGHTING STANDARDS

The Union Metal Mfg. Co., Canton, Ohio, will be pleased to send its literature based on 16 years' experience in solving lighting problems, to municipal officials interested.

WHAT ROCK ASPHALT MEANS TO ROAD BUILDERS

Booklet D-4 issued by the Kentucky Rock Asphalt Co., 712-718 Marion E. Taylor Building, Louisville, Ky., describes in detail the value of Kentucky rock asphalt to engineers and contractors in the road-building field.

TROUBLE-FREE SEWER FLUSHING SIPHONS

Catalog No. 22, issued by the Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago, Ill., describes in detail the Miller automatic siphon, which is without moving parts and which works in a sewer flush tank underground, without trouble.

TRACKLESS TROLLEYS AND MOTOR BUS BODIES

In its publication No. 260, the J. G. Brill Co., Philadelphia, Pa., gives some information regarding safety street cars, trackless trolleys and motor bus bodies which should interest municipal officials facing transportation problems.

HIGH-GRADE LIGHTING STANDARDS

The King Mfg. Co., St. Joseph, Mo., will be pleased to send helpful information regarding street lighting improvements to any municipal officials contemplating street lighting work.

AN EFFICIENT CATCH-BASIN CLEANER

In Circular No. 55-AC, the Elgin Sales Corp., 501 Fifth Ave., New York City, describes in detail the Auto-Eductor, which is a combination cleaning machine, capable of flushing and sprinkling streets and cleaning catch-basins, and can be used as an emergency pumper at fires, as a tree sprayer, sidewalk flusher, cesspool cleaner and an ordinary motor truck, subject to all uses, such as with snow-plows attached, etc.

SANITARY GRAVITY COOLER-BUBBLERS

For use in rural schools and where there is no water pressure, the Century Brass Works, Inc., Belleville, Ill., makes a gravity bubbler which is described in detail in a special folder which may be secured by interested officials.

CHEMICALS FOR WATER PURIFICATION

The Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia, Pa., will be pleased to quote prices on the highest grades of sulphate of alumina and liquid chlorine for the use of municipal water purification plants.

ATTRACTIVE ORNAMENTAL CONCRETE POSTS

The Alpha Portland Cement Co., Easton, Pa., in Alpha Aids, No. 33, describes methods by which anyone can manufacture both plain and ornamental concrete posts economically and satisfactorily.

MOTOR-CYCLES FOR POLICE SERVICE

The special police booklet, "Maintaining Law and Order," issued by the Hendee Mfg. Co., Springfield, Mass., tells the story of the economy, speed and acceleration of Indian motor-cycles, which have special features for police department service.

FIRE PROTECTION FOR SUBURBS AND SMALL TOWNS

The value of Deluge-Ford chemical and hose trucks for the protection of the suburbs of large cities and outlying districts is told in the latest literature of the Prospect Mfg. Co., Prospect, Ohio.

MOTORS AND PUMPS FOR WATER-WORKS

Fairbanks-Morse & Co., Chicago, Ill., will be pleased to send information regarding its centrifugal pumps direct-connected to Fairbanks-Morse motors for water-works. They feature the manufacture of both the pump and the motor as simplifying the responsibility for the installation.

A TRUCK-MOUNTED CRANE FOR CITIES

The Truckrane, a portable crane of sturdy construction, mounted on any motor truck chassis, second-hand or new, of 5 tons capacity or greater, is particularly serviceable on innumerable city jobs. It is described in interesting literature which may be secured from the Byers Machine Co., Sycamore St., Ravenna, Ohio.

MODERN GRADING EQUIPMENT

The Holt Mfg. Co., Peoria, Ill., will be pleased to furnish information on the use of Holt "Caterpillar" tractors in grading, leveling, street maintenance, scarifying, hauling materials, for garbage disposal trains, for dirt removal, park improvement and other public works.

THE STORY OF WATER-METERS

The Neptune Meter Co., 50 E. 42nd St., New York City, is publishing a series of letters to "Dear Jim" which, in an interesting and entertaining manner, tell the story of Bill's trips through the Neptune factory, where he saw the manufacture of Trident water-meters from the start to finish. These letters will be mailed to any water-works superintendent or municipal official on request.

FAITHFUL FIRE ALARM SERVICE

The Gamewell Co., Newton Upper Falls, Mass., will send its literature describing Gamewell fire alarm boxes, which in 190 cities have been in service for 20 years or more, and describing particularly the improved boxes which are now available.

ASH COLLECTION WITH COVERED CANS

The descriptive leaflets of the American Can Co., Toledo, Ohio, describe the Canco galvanized covered ash can used in communities with up-to-date ash collection systems.

CAST IRON CULVERTS

The advantages of cast iron pipe for culvert service in cities and on county highways is contained in information which may be secured from the U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.

MUNICIPAL WATER FILTRATION PLANTS

The literature of the Roberts Filter Mfg. Co., Darby, Pa., describes the essential needs of municipal filtration plants and how they are fulfilled by Roberts installations.

ROAD MACHINES FOR EVERY KIND OF WORK

Municipal and county street and road engineers will be interested in the new Avery booklet showing the complete Avery line, covering a machine for every road job. This booklet may be secured from the Avery Co., 223 Iowa St., Peoria, Ill.

*There was
not a single
death from Typhoid
Fever in Providence
in 1922*

The Providence Journal
THURSDAY, JANUARY 4, 1923

PROVIDENCE HAS NO TYPHOID FEVER DEATH DURING 1922

A remarkable freedom from typhoid fever deaths, which Superintendent of Health Chapin says has never been equaled by any city the size of Providence in the country up to 1922, was enjoyed by this city during the year just closed. According to statistics compiled by the health department, there was not a single death from typhoid in Providence during the year.

In 1919 the city of Spokane, Wash., which then had a population of 104,000, went through the

Providence, like 3000 other American Municipalities uses
'W & T' Apparatus to Sterilize EVERY DROP
of its Water Supply with Liquid Chlorine.



WALLACE & TIERNAN

COMPANY INCORPORATED
NEWARK : NEW JERSEY

NEW YORK CHICAGO PITTSBURG SAN FRANCISCO KANSAS CITY
ST. LOUIS SEATTLE KNOXVILLE DALLAS MINNEAPOLIS
WALLACE & TIERNAN, LTD., TORONTO



Catalogs of Municipal Interest

You can secure any or all free of charge if you mention The American City

A TRAFFIC-HANDLING SYSTEM

In a recent booklet issued by the Line Material Co., South Milwaukee, Wis., municipal officials will find a complete description of an interesting system for the safe and expeditious handling of traffic through the use of Directing Trafficons and Regulating Trafficons.

MAKING PAVING SAFE FOR THE TAXPAYER

This is the title of a booklet recently issued by the W. S. Godwin Co., 12 E. Lexington st., Baltimore, Md., which describes the use of Godwin paving and curb guards for installation to lengthen the life of any pavement or curb.

CAST IRON PIPE AND FITTINGS

The American Cast Iron Pipe Co., Birmingham, Ala., will be pleased to furnish to municipal officials information regarding the cost of cast iron pipe and special fittings and castings.

A ONE-MAN GRADING OUTFIT

In its folder, "A One-Man Outfit," the Twin City Company, Minneapolis, Minn., describes in detail the use of a Twin City tractor with your regular road maintainer, to make a one-man tractor-drawn outfit for maintaining roads.

FIRE HYDRANTS

Water-works and fire officials interested in securing a dependable, strong, large-capacity fire hydrant should write to R. D. Wood & Co., Philadelphia, Pa., and ask for its literature on Mathews fire hydrants.

TRAFFIC ROUTING IN TRENTON

The Traffic Engineering Division of the American Gas Accumulator Co., Elizabeth, N. J., has just issued an interesting folder entitled "Traffic Engineering in Trenton," which describes the use of AGA traffic lights and the gains made in traffic control by their installation.

ROAD BUILDING WITH WHEEL GRADERS

In its 56-page illustrated catalog, "Modern Road Building with Adams Adjustable Leaning Wheel Graders," J. D. Adams & Co., Indianapolis, Ind., describes the many advantages claimed for this type of machine and shows actual photographs of the machine on many types of grading jobs.

BUILDING DURABLE BITUMINOUS PAVEMENTS

Bulletin 29, issued by the Pittsburgh Testing Laboratory, Pittsburgh, Pa., tells in some detail how Pittsburgh Testing Laboratory control enables municipalities to build more durable bituminous pavements.

LASTING VALUE IN MUNICIPAL TRUCKS

The literature of the White Co., Cleveland, Ohio, tells why such cities as New York, Cleveland, Chicago and New Orleans use 416, 126, 100 and 57 White trucks respectively in their various departments.

SALVAGING OLD PAVEMENTS

In Brochure No. 14 issued by the Asphalt Association, 25 W. 43rd St., New York City, road engineers and others interested in the salvaging of old pavements by resurfacing, will find much information of interest and value.

RELIABLE DIESEL ENGINES FOR CITIES

The McIntosh & Seymour Corp., Auburn, N. Y., will send to any interested municipal officials and to water and electric power-plant engineers, free on request, full information regarding its economical and reliable industrial Diesel engines for municipal lighting, power, water-works and pumping-plants.

VALUABLE STREET LIGHTING BULLETIN

Municipal officials interested in securing complete information regarding the lighting of city streets, parks, boulevards and highways with Mazda lamps should secure Bulletin LD-144 recently issued by the General Electric Co., Schenectady, N. Y.

AN OUTDOOR ANTI-FREEZING BUBBLING FOUNTAIN

The fully illustrated literature of the Murdock Mfg. Supply Co., Cincinnati, Ohio, describes in detail its anti-freezing bubbling fountains for parks, playgrounds, public streets and all open places.

STURDY NURSERY STOCK

The Storrs & Harrison Co., Box K, Painesville, Ohio, will be pleased to quote special prices on carload lots of evergreens, ornamental trees, shrubs, roses and vines for municipal planting.

ANY ROOTS IN YOUR SEWERS?

The catalog of the Turbine Sewer Machine Co., 195 Eleventh St., Milwaukee, Wis., describes the savings effected in many cities by the use of turbine sewer-cleaning machines for the removal of mud, deposits and roots from sewers.

REINFORCED CONCRETE LIGHTING STANDARDS

Catalog No. 9, issued by the Massey Concrete Prod. Corp., Peoples Gas Bldg., Chicago, Ill., describes the advantages of mounting ornamental street lights on attractive standards.

MEMORIAL FOUNTAINS AND TABLETS

The J. L. Mott Iron Works, Fifth Ave. and 17th St., New York City, will be pleased to send information regarding its distinctive memorial fountains and bronze tablets commemorating heroes who served in the World War.

COMPLETE NURSERY STOCK

The price list of Henry Kohankie & Sons, Painesville, Ohio, lists its complete stock of unexcelled quality ornamental trees, shrubs and hardy perennials for city, park and playground planting.

PRESSURE GATE-VALVES

The Rensselaer Valve Co., Troy, N. Y., will be glad to send a copy of its complete catalog F describing its heavy pressure gate-valves made with cast iron bodies and full composition mountings.

STEEL TUBULAR AND TAPER WELDED FLAG-POLES

The catalog and price list of the Pole & Tube Works, Newark, N. J., describes in detail the steel tubular and taper welded flagpoles which this company is making for commons, parks and war memorials.

PARK LAWN AND GOLF COURSE SPRINKLERS

The Buckner Mfg. Co., Fresno, Calif., has just issued a new booklet describing completely its park and golf course sprinkler system as well as its automatic fertilizer and insecticide distributor.

ORNAMENTAL SHRUBS AND FOREST TREE SEEDLINGS

The catalog and price list of the Forest Nursery Co., McMinnville, Tenn., contains a very complete listing of ornamental shrubs and forest tree seedlings for municipal and park planting.

DUMPING EQUIPMENT FOR MUNICIPAL TRUCKS

The literature of the Heil Co., 1242-60 26th Ave., Milwaukee, Wis., tells us how many cities have increased the utility of their trucks by installing Heil hoists and dump bodies.

GOOD WILL SIGNS

The Little Giant Co., 230 Rock St., Mankato, Minn., will be pleased to send its literature describing Little Giant tourist directors, good will directors, and greeting signs which have proved so popular in cities and towns throughout this country.

COIN DEMONSTRATES WATER WASTE

The H. W. Clark Co., Mattoon, Ill., will send to any water-works superintendent or municipal official free on request one of its pocket coins with small holes and figures, indicating the alarming amount of waste of water through small leaks.

SILENT, SANITARY, SHOCK-ABSORBENT PAVEMENTS

In its 26-page booklet "C-843," Warren Brothers Co., 9 Cambridge St., Boston, Mass., describes in detail the value of Warrenite-Bituthic pavement with special reference to its economy and its silent, sanitary, shock-absorbing qualities.

A NEW PIPE-DRILLING MACHINE

Detailed information and prices on the new Mueller drilling machine No. C, for making lateral or branch connections in water-mains, may be secured from the H. Mueller Mfg. Co., Decatur, Ill.

DISC TYPE WATER-METERS

Bulletin 200, issued by the National Meter Co., 299 Broadway, New York City, contains interesting and valuable information regarding the Nash type K disc water-meters.

THE MOTOR TRUCK IN ROAD WORK

The Ruggles Motor Truck Co., Saginaw, Mich., has issued an interesting folder discussing America's highway system and the Ruggles Road Builder trucks in the handling of road materials.

THE AMERICAN CITY

MATHIESON Chemicals

Liquid Chlorine for Water Purification

AN individual weight record of each cylinder is no longer necessary if you use Mathieson liquid chlorine.

Our cylinders are now loaded with an even net weight of liquid chlorine—105 pounds in the small size, 150 pounds in the large size.

Together with the Mathieson Chlorine Valve and the Mathieson plan of cleaning, drying and inspecting all cylinder equipment before refilling, this new feature rounds out a service you cannot afford to overlook.

Specify Mathieson gray cylinders—the cylinders with a standard weight of liquid chlorine.

*Let us help you with your
water purification problems*

The **MATHIESON ALKALI WORKS Inc.**
25 WEST 43rd STREET NEW YORK CITY

PHILADELPHIA
PROVIDENCE



CHICAGO
CHARLOTTE

Deal Direct with the Manufacturer

CAST IRON PIPE AND FITTINGS

American Cast Iron Pipe Company

Birmingham, Ala.

SALES OFFICES IN PRINCIPAL CITIES

LYNCHBURG FOUNDRY COMPANY

Manufacturers of

CAST IRON PIPE AND FITTINGS

Main Office: LYNCHBURG, VA.

Works at Radford, Va., Lynchburg, Va.

DONALDSON IRON CO.

EMAUS, LEHIGH CO., PA.

MANUFACTURERS OF

CAST IRON PIPE

FOR WATER AND GAS

ALSO SPECIAL CASTINGS AND FLANGE WORK

National Cast Iron Pipe Co.

Birmingham, Ala.

MANUFACTURERS OF

Cast Iron Water and Gas Pipe

Sales Offices:

Peoples Gas Building Commerce Trust Building
Chicago, Ill. Kansas City, Mo.
Great Southern Life Bldg. Rialto Building
Dallas, Texas San Francisco, Cal.

JAMES B. CLOW & SONS

General Offices:

534-546 S. Franklin Street, Chicago

Works:

Coshocton, O. Chicago, Ill. Newcomerstown, O.

Sales offices in all principal cities

Manufacturers of Cast Iron Pipe and
Fittings

GLAMORGAN PIPE & FOUNDRY COMPANY

LYNCHBURG, VA.

General Founders and Machinists

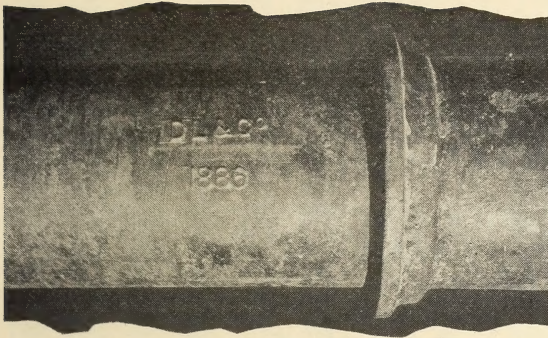
Manufacturers of

Cast Iron Pipe

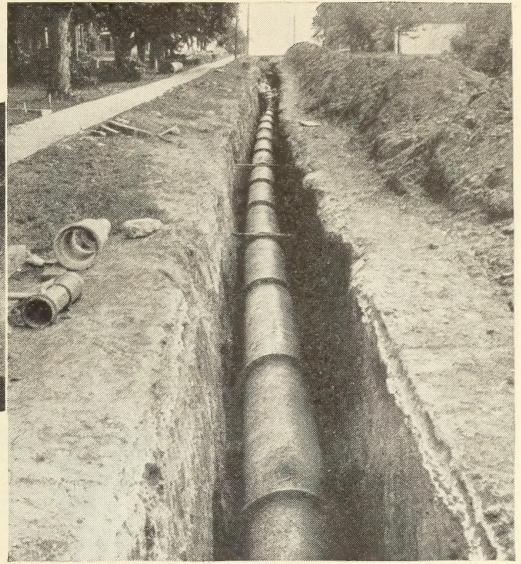
For Water and Gas, Flange Pipe and Fittings

Western Office: 543 The Rookery, Chicago

Above advertisements paid for by The Cast Iron Pipe Publicity Bureau



The clearness of the thin raised letters on this pipe, showing the maker's initials and the date of manufacture, indicates that there has been practically no corrosion after 36 years of service.



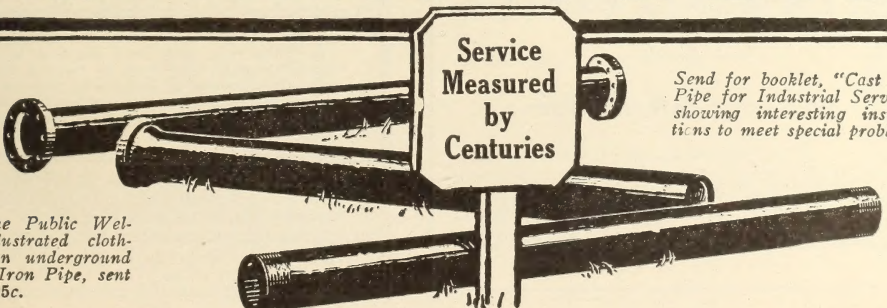
Cast Iron Pipe Need Never be Discarded

THIS 24-inch Cast Iron Pipe was laid in Omaha in 1886, and served as a pumping line from the old station at Sixth and Burt Streets. The station was abandoned in 1912 on account of the contamination of this source of water supply. The pipe was used as a supply line for ten years longer, and was then taken up and relaid as a pumping line from the Walnut Hill Station.

Contingencies which necessitate relaying of pipe may occur in the best of water systems. For instance, larger mains may be needed; streets may be abandoned; a pumping station may be abandoned or a new source of water supply developed; or streets may be re-graded, necessitating lowering or raising of the main. For this reason it is important to bear in mind that Cast Iron Pipe may be easily dug up and relaid; and that *after centuries of service*, it will be found still in good condition and ready for re-installation elsewhere.

THE CAST IRON PIPE PUBLICITY BUREAU, Erie and St. Clair Streets, Chicago

CAST IRON PIPE



"Pipe and the Public Welfare," an illustrated cloth-bound book on underground uses of Cast Iron Pipe, sent postpaid for 25c.

Send for booklet, "Cast Iron Pipe for Industrial Service," showing interesting installations to meet special problems.

Chemicals for Water Purification

We manufacture the highest grades of

Sulphate of Alumina

Chloride of Lime

and

Liquid Chlorine

PENNSYLVANIA SALT MFG. CO.

WIDENER BLDG.

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PHILADELPHIA, PA.

NORWOOD FILTERS

Designed to meet all
Water Purification
Requirements.

RE-FILTRATION
SYSTEMS
for
SWIMMING POOLS

Write for Information

NORWOOD ENGINEERING CO.
FLORENCE, MASSACHUSETTS

THE WATER SUPPLY of Swimming Pools

with Data on Design, Construction and Operation
BULLETIN NO. 500 JANUARY 1, 1922



GRAVER Corporation

1000 PULASKI AVENUE CHICAGO, ILL. 60642

Best Tools and General Steel Pipe Construction

Water-Heating and Heating Equipment

East Chicago, Indiana

Send for this Book

Swimming Pools

can be economically furnished with pure water at correct temperature by the Graver Refiltering or Recirculating System. Complete system comprises Filters, Heaters, Coagulant and Sterilizing devices. Layouts and prices furnished without obligation.

Ask for Bulletin 500, containing drawings, data and general information.

Graver Corporation
East Chicago, Indiana

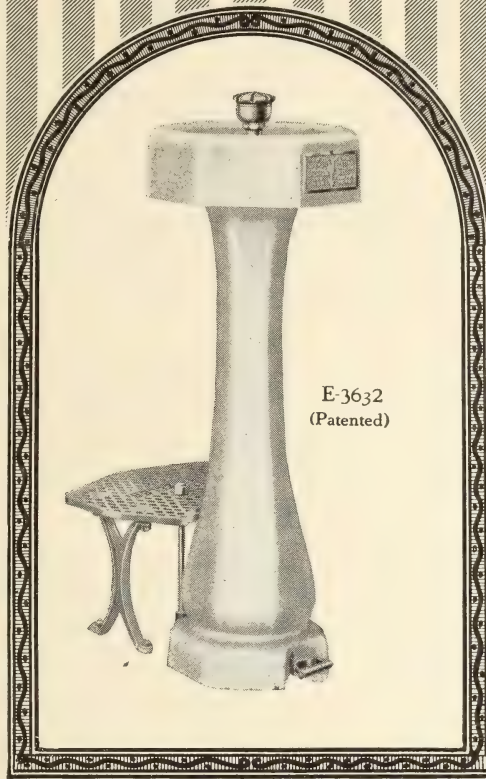
INTERNATIONAL GRAVITY FILTRATION PLANTS

THROUGH the years, the International Filter Co. has been the first to adopt improvements—the first to discard features that have proved hindrances of progress. The result has been that International equipment has maintained its leadership; that it is first now as always.

INTERNATIONAL FILTER CO.

Water Softening and Filtration Plants
Works and General Office: 333 West 25th Place, Chicago

New York Pittsburgh Buffalo San Francisco
Canadian International Filter Co., Ltd., Toronto.



E-3632
(Patented)



Health Protection for the Public

Modern sanitary appliances are absolutely necessary for public health protection. Every community needs them.

Mueller Sanitary Drinking Fountains

are designed to serve the public and to give complete health protection. They are built to last a lifetime, with practically no attention after being installed.

No. E-3632, shown herewith, is one of many designs, all equally sanitary. Detailed descriptions and prices on request.

H. MUELLER MFG. CO., Decatur, Illinois, U. S. A.

PHONE BELL 153

Water, Plumbing and Gas Brass Goods and Tools

New York City, 145 W. 30th St.

San Francisco, 635 Mission St.

Phone Pennsylvania 2468

Sarnia, Ontario, Canada

Phone Sutter 3577

Mueller Metals Co., Port Huron Mich., Makers of "Red Tip" Brass Rod; Welding Rod; Brass and Copper Tubing; Forgings and Castings in Brass and Bronze; also Brass Screw Machined Products.

For Pure Water

DU PONT FILTER ALUMS

It is your problem to maintain a constant supply of pure water for your community. And it is a real problem during the spring storms. The swollen streams carry a high percentage of waste, which must be eliminated as a safeguard to public health.

For just such conditions du Pont Filter Alums are being used successfully. They will enable you to supply clear, healthful water under the most trying conditions.

Buy du Pont Filter Alums.

E. I. du Pont de Nemours & Company, Inc.

3500 Grays Ferry Road, Philadelphia, Pa.
256 Vanderpool St., Newark, N. J.



GRAVITY PRESSURE

FILTERS

HYPOCHLORITE APPARATUS

**ALL VARIETIES OF
CHEMICAL FEEDING DEVICES**

Write for Bulletin 17-3

**THE NEW YORK CONTINENTAL
JEWELL FILTRATION CO.
NUTLEY, N. J.**

Pure Water

We manufacture filters for all domestic, industrial, and municipal requirements.

For over twenty-five years Roberts Filters have been supplying pure, clean water.

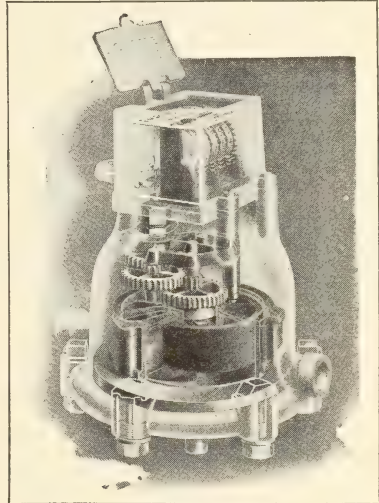
*Write for descriptive
literature.*

**Roberts Filter Mfg. Co.
DARBY, PA.**

Spring Thoughts

Everything is looking fine, even the weather. It's a great time for house-cleaning, and for getting everything in shape for the busy days to follow.

Why not go through the good old Plant today, and list up everything you need or are going to need, as far ahead as you can see? Are all your services metered? Are you using in every place the right meters to bring in the biggest returns? Have you enough meters on hand to take care of all the new buildings that are going up in your city? Have you any meters that ought to be sent to the factory for repairs? Building is booming—business is coming strong. Why not be ready for it?



"THE EMPIRE"

We are all ready to cooperate with a line of well known, A-1 meters, of all types and sizes. The Empire, the most accurate of all meters, is a positive displacement, oscillating piston type. The Nash is a mighty good disc meter. We also make rotary, turbine, compound and Venturi styles. Specialized information on any or all gladly furnished on request.

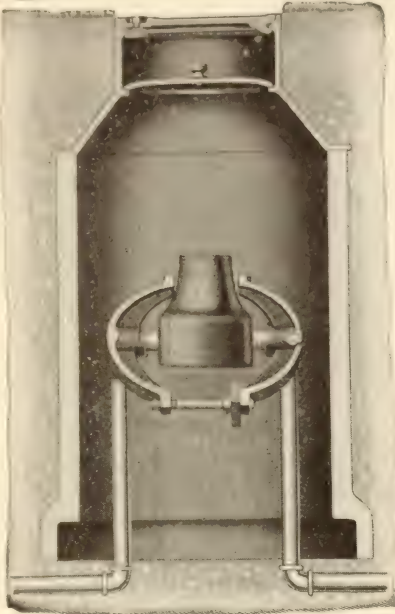
Send for general catalog.

NATIONAL METER COMPANY

299 BROADWAY, NEW YORK CITY

CHICAGO, ILL.: 1455 West Congress St.
CINCINNATI, O.: 530 Reading Road
BOSTON, MASS.: 287 Atlantic Ave.

ATLANTA, GA.: 253 Ivy St.
SAN FRANCISCO, CAL.: 141 New Montgomery St.
WINNIPEG, MAN.: 111 Ethelbert St.



30° Below Zero and not a meter out of commission

"We have experienced no trouble with freezing with the temperature as low as 30 degrees below zero," writes the superintendent of the Water Department in Waukesha, Wis., commenting on Ford Meter Boxes.

This is not the only case, for water works men of the East, West and Middle West—in cities where Ford Meter Boxes have been in operation during the severest weather—have given testimony to the absolute protection afforded by Ford Meter Boxes.

In cities where water enters the box at freezing temperature, the conservation of every possible heat unit is necessary. The patented Wabash Double-Lid Cover, shown above, accomplishes this purpose—it removes all danger of freezing. Its patented construction retains all the heat given off by the meter as well as the heat rising from the bottom of the box.

Wabash Double-Lid Covers are recommended for all locations north of the 39th parallel—because they make meters freeze proof.

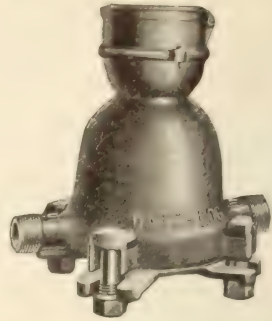
Write for Catalog—today.

The Ford Meter Box Co.
406 S. Carroll Street
Wabash Ind.

EVERYTHING FOR THE METER
SYSTEM EXCEPT THE METER

Builders Iron Foundry
New England Representatives

"WATCH DOG"



WATER METERS

Accurate
Durable
Efficient

GAMON METER COMPANY

Main Office and Works:
NEWARK, NEW JERSEY



Electro Bleaching Gas Co.

PIONEER MANUFACTURERS OF LIQUID CHLORINE

Plant: NIAGARA FALLS, N.Y.

Main office 18 East 41st Street New York Chicago office 11 So. La Salle St.



JOHNSON BRASS WELL SCREENS

Have 50% greater capacity than any other. If your well ends in sand or gravel you need one. Insures continuous use.

Write us

Edward E. Johnson, Inc.
St. Paul Minn.

A WATER WASTE SURVEY PAYS *for* ITSELF

Every water waste survey thus far made by the Simplex Valve & Meter Company has revealed a waste of water, the cost of delivering which for one year has far exceeded the total charge for making the survey.

Simplex water waste surveys check up the performance of your pumps, the registration of your meters and through subdividing the distribution system into districts, locate leaks in mains or house services, broken mains, blown joints and other losses.

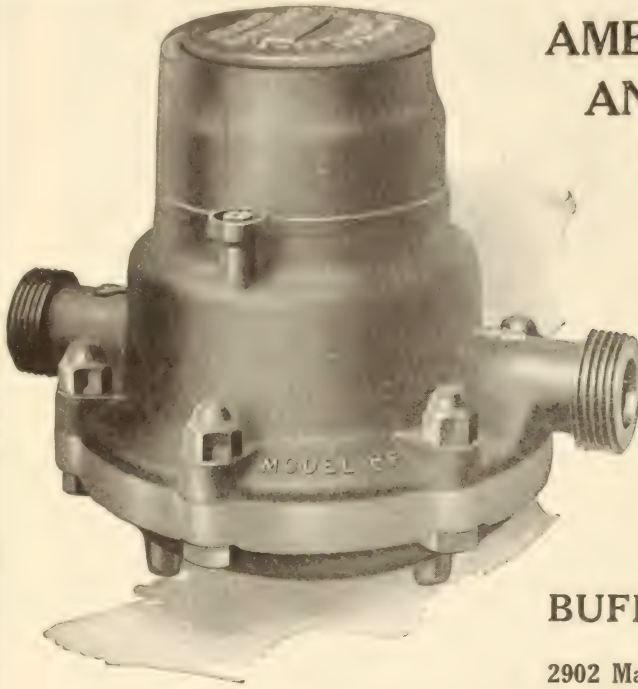
The organization of the Simplex Valve & Meter Company includes a corps of engineers thoroughly experienced in this work and their services as well as the use of the Simplex water waste instruments are at all times available for the use of water departments and water corporations.

SIMPLEX VALVE & METER CO.

57th & RACE STS. - PHILADELPHIA, PA.



A Simplex Pitot tube recorder set up over a water main in a portable house for testing flow during water waste survey.



AMERICAN AND NIAGARA WATER METERS

are made in ten pipe sizes, from ½ in. to 4 in. inclusive—in four styles of outside casings, the breakable frost bottom type is illustrated herewith—with either round reading or straight reading registers—with submerged working parts of one best model, built of hard rubber and bronze composition.

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BUFFALO METER CO.

ESTABLISHED 1892

2902 Main Street,

Buffalo, N. Y.



WATER METERS

for

Every Class of Service



The "Arctic"
Frost Bottom
Meter.

*Meters for Gas,
Oil, Air, Gasoline,
Oxygen, Hydro-
gen, Acetylene
and other Fluids.*

**Gas and Water Meter
PROVERS**

**PITTSBURGH METER
COMPANY**

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CHICAGO—5 So. Wabash Ave.
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WATER WORKS EQUIPMENT MATERIALS AND SUPPLIES

A line designed and manufactured from an actual knowledge of Water Works needs by water works engineers.

THE CLARK METER BOX

Scientifically houses and protects the water meter in every climate and under all conditions.

Send for General Catalogue No. 20.



H. W. CLARK CO.

*Everything for the
Water Works*

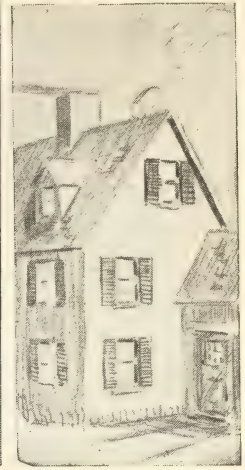
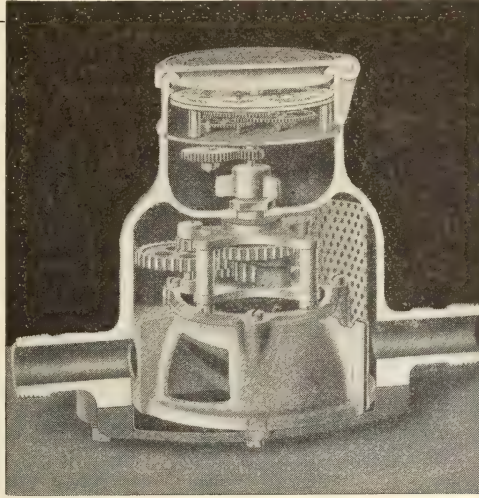
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FOUR HUNDRED YEARS



All Endurance Records Broken

A 5/8" Hersey Disc Meter No. 835,514 on an endurance test at the Meter Testing Laboratory of the Water Department at Newark, N. J., registered 3,902,164 cubic feet of water without being repaired or even opened for examination. It was tested for accuracy and sensitiveness at each 100,000 cubic feet, and these tests showed a falling off in accuracy the first million feet of but 4/10ths of one per cent, 1-5/10ths the second, 1-4/10ths the third and 7/10ths the last 902,164 feet, or but 4% all together.

The Meter continuously responded to the sensitive test of a 1/64" stream from the first and through all tests to the very last.

400 Years

The test was "continuous running" at a rate of about 3-3/5 cubic feet or 27 gallons per minute from February 27th, 1920, to March 28th, 1922.

3,955,364 cubic feet of water is equal to 400 years' service at 10,000 feet per year.

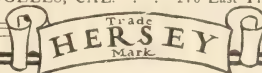
HERSEY MANUFACTURING COMPANY

Main Office & Works: Corner E and 2nd Sts., South Boston, Mass.

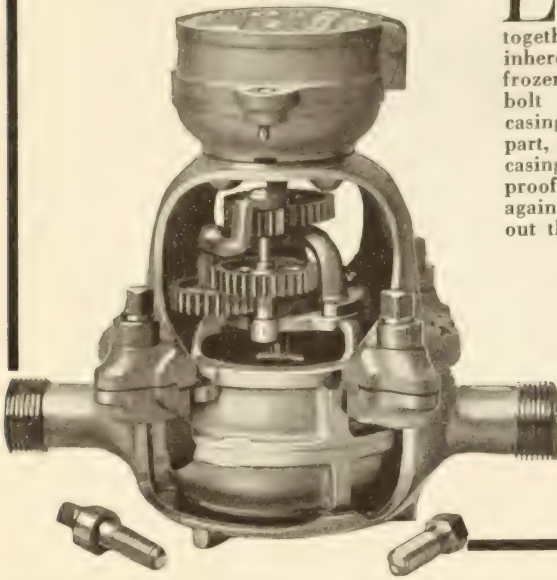
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LOS ANGELES, CAL. 218 East Third Street

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FROST PROOF METERS



LAMBERT FROST-PROOF METERS are the most efficient, simplest and easiest water meters to take apart and put together again. Long life and accuracy are inherent qualities with these meters. When frozen the patented non-corrosive yielding bolt device permits the top and bottom casings, disc chamber and gear train to part, thereby preventing any damage to the casing or internal mechanism. This frost-proof device can be used over and over again after the meter has been frozen without the need of any new parts.

*Complete descriptive literature
sent at your request.*

THOMSON METER CO.

100-110 Bridge St., Brooklyn, N.Y.



Since 1868

Union Water Meters, improved with the advance of time, have been designed and constructed on sound scientific principles that have made them generally regarded as standard.

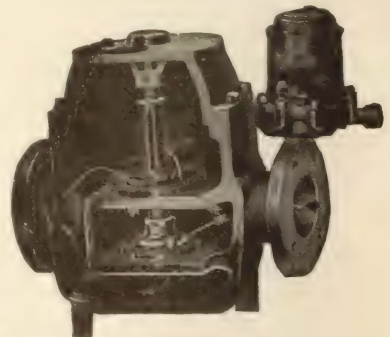
Compound Water Meters

The Union Compounding Valve attached to your large meter will give you accurate register of small flows and thus check what otherwise would be revenue wasted. Easily attached without disturbing service lines.

*Catalog A52 contains complete
information. Yours upon request.*



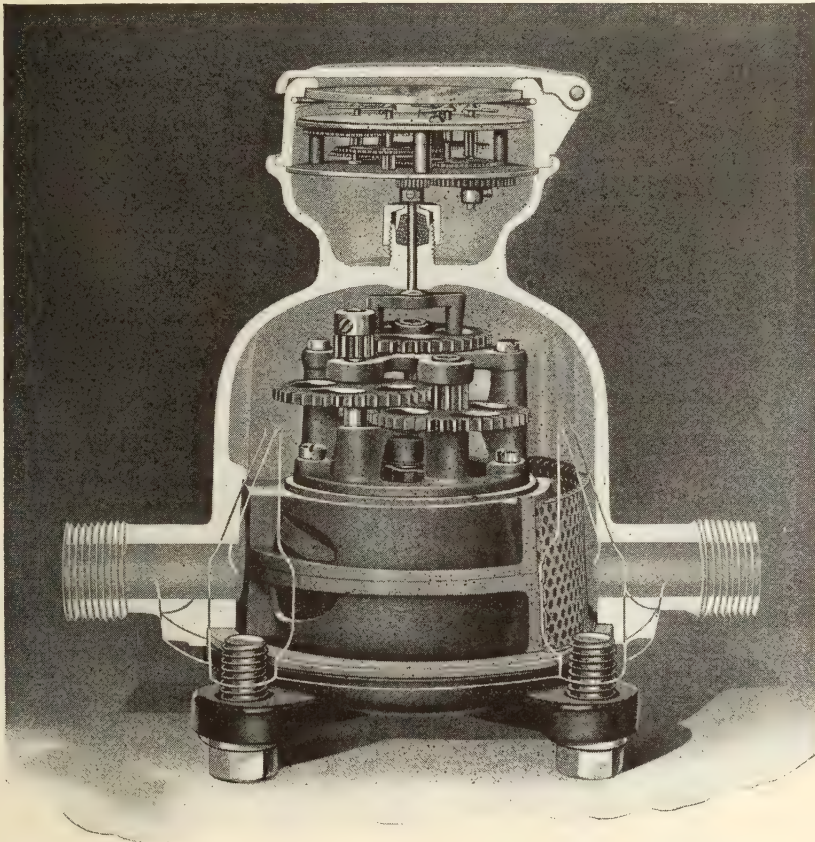
Union Water Meter Co.
WORCESTER, MASS.



HIGHEST GRADE WATER METERS

ACCURATE, SENSITIVE, DURABLE AND EFFICIENT

Badger disc meters, made in sizes $\frac{5}{8}$ -inch to 4-inch inclusive are designed for domestic and industrial service where the demand is moderate



All Badger Meters from $\frac{5}{8}$ -inch to $1\frac{1}{4}$ -inch inclusive, are equipped with breakable bottom plates which in the event of freezing give way with the expansion of the ice and relieve the working parts of abnormal pressure. There is no damage to the meter other than the breakage of the frost bottom. We also manufacture turbine and compound meters which are described in special Bulletins.

BADGER METER MFG. CO.

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CLEAN YOUR WATER MAINS

One does not have to be an expert mathematician to figure out that a clogged water main calls for a stronger pressure and that in turn calls for more coal—and literally burning up money. We can show you how to get dollar for dollar value out of every ton of coal. We can show you how to clean the water mains quickly and cheaply. Send us your address—that's all we ask of you.

National Water Main Cleaning Co.

Hudson Terminal Building
NEW YORK CITY

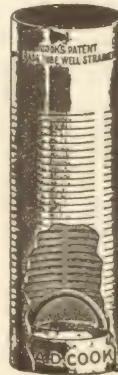
Cast Iron Pipe and Fittings

“Mathews” (REG. U. S. PAT. OFF.)

Fire Hydrants

Gate Valves
Check and Foot Valves

R.D. WOOD & CO.
ESTABLISHED 1803
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Eliminates sand from deep water wells with the

Cook Patent Brass Tube Well Strainer

Write for Bulletin 80.

A. D. COOK, Inc.

*Manufacturers of Deep Well Pumps
and Strainers*

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For Water, Sewage, Gas, Air, Steam—
in fact everything that flows.

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CRANE SANITATION EQUIPMENT INCLUDES FIXTURES IN A WIDE RANGE OF STYLES AND TYPES FOR EVERY CLASS OF SERVICE

GREATER CONVENIENCE IN BUYING

Crane service, by providing full stocks of sanitation fixtures and piping for all standard or special needs, saves you time and expense when buying equipment. For comfort stations and other public buildings, Crane sanitation appointments are supplied in sturdy patterns to withstand the hardest usage. Crane valves,

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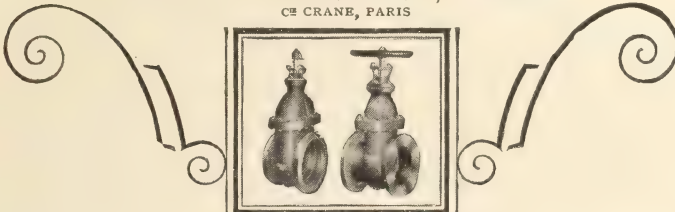
National Exhibit Rooms: Chicago, New York, Atlantic City

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CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON

CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO

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Standard Gate Valve for Water, No. 462
Standard Gate Valve for Steam, No. 461

Fire Hydrants

Smith Fire Hydrants are scientifically constructed by engineers to deliver the greatest volume of water under a given pressure.

Smith Fire Hydrants are designed with easy-flow waterways without detours or obstructions which have a tendency to kill efficiency and retard the flow. This hydrant is built strictly along hydraulic principles to meet the exacting demands of modern fire equipment.

Compare this hydrant with other hydrants under parallel and static conditions, and you will find that the Smith hydrant produces the greatest volume at the nozzle, with low frictional loss.

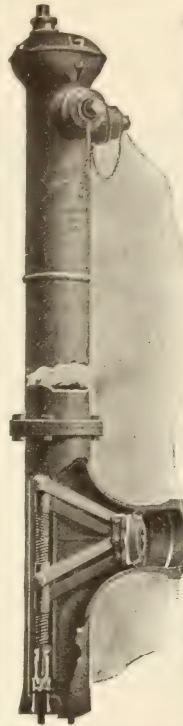
Easy-operation with positive drip-valve. Built for rugged use. Adopted by cities throughout the country and especially designed for high pressure services.

Made by the makers of Smith Tapping Machines, Valves, Gate Valves and other water works specialties.



The
A.P. Smith
Mfg. Co.
East Orange, N.J.

"COREY" HYDRANTS



Easily operated. The knuckle joint gives easy and positive closing of specially prepared rubber main valve. All interior working parts are made unusually strong and of solid bronze or bronze mounted. The rubber drip valve gives perfect drainage.

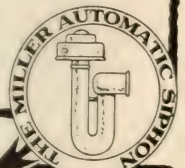
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RENSSELAER
VALVE COMPANY
TROY, N. Y.

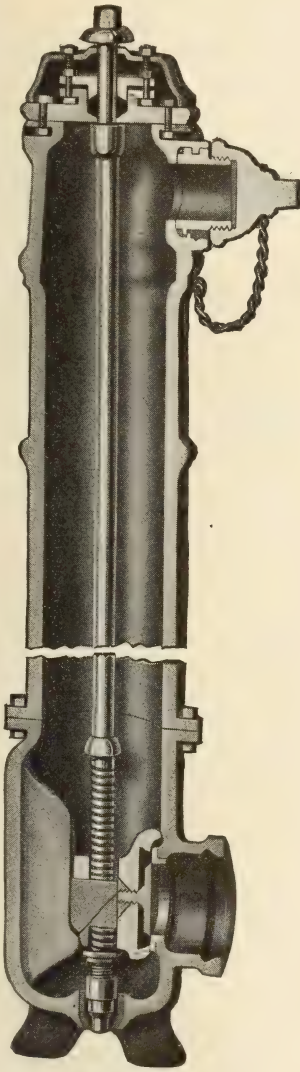
River pollution is a crime!

Coming generations will realize that the pollution of our streams was unnecessary. The Pacific-Flush-Tank Company specializes in sewage disposal apparatus. Everything for the automatic collection and final disposition of sewage may be obtained from them. Two text book catalogs which make particular mention of this branch of the subject are available. They are No. 14 for large plants, and No. 16 for small plants, which will be sent free to any one officially asking for them. Please use your letterhead.

2027-p



PACIFIC FLUSH-TANK CO.
SINGER BUILDING, NEW YORK
4241 RAVENSWOOD AVE. CHICAGO



Ludlow Hydrants

The demand for a strictly first-class non-freezing hydrant, strong in every part, simple in construction, and having practically unobstructed passages for the flow of water, is best met by the installation of Ludlow slide gate fire hydrants. This hydrant used in over 3,000 cities in the United States, performs its work easily and satisfactorily under all conditions of soil and weather, produces no water hammer in closing, remains tight under all pressures and has a positive drip, which drains the hydrant barrel completely. It is possible to take all of the working parts out without digging and without disturbing the hydrant barrel.

The latest Ludlow catalog which will be sent you upon receipt of your request, describes these hydrants in detail and also lists the complete line of Ludlow double gate valves in all sizes for hand or electrical operation.

The Ludlow Valve Mfg. Co.

Troy, N. Y.

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"Destruction not Reduction"

Garbage and Refuse Incinerators for Municipalities

POSITIVELY NO AUXILIARY FUEL REQUIRED.

THE BALMER CORPORATION 150 Nassau Street NEW YORK CITY

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D. & D. Safety and Noiseless Cover

WM. E. DEE COMPANY

30 N. La Salle Street Chicago, Ill.

We manufacture Manhole, Catch Basin and Sewerage Castings of all kinds. We make anything in Gray Iron. Write for our prices.

COLUMBIAN IRON WORKS

CHATTANOOGA, TENN.

Manufacturers of Fire Hydrants, Valves, Valve Boxes, Sluice Gates, Meter Boxes and Water Works Supplies

ESTIMATES PROMPTLY FURNISHED

SLUICE GATES, CHECK VALVES, AIR VALVES, INDICATOR POSTS, ETC.

**GATE
VALVES**

EDDY

**FIRE
HYDRANTS**

Hydraulically and Electrically Operated Valves and Sluice Gates. Valves Designed For All Kinds of Service.

EDDY VALVE COMPANY, WATERFORD, N. Y.

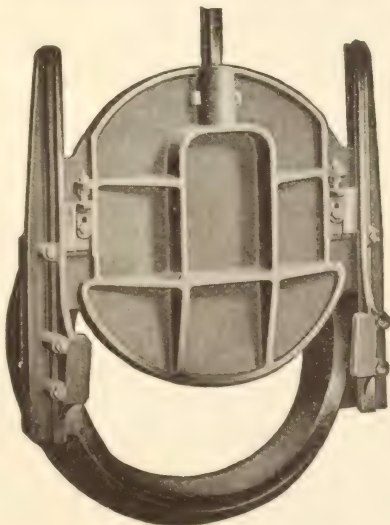
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**Sluice, Head and Penstock Gates
Flap and Shear Valves**

The kind that don't wear out

COLDWELL-WILCOX COMPANY

Water Street

Newburgh, N. Y.

Trade **LEADITE** Mark

Registered U. S. Patent Office

NO CAULKING

For Jointing Cast Iron Water Mains

Saves 50% to 75%

Leadite Joints Improve with Age

THE LEADITE COMPANY

100 S. Broad Street

Philadelphia, Pa.



KENNEDY

**WATER GATES
HYDRANTS
VALVES**

THERE ARE 500 TYPES AND SIZES OF KENNEDY VALVES AND THEY ARE FULLY DESCRIBED IN OUR LATEST CATALOG. SEND FOR IT TODAY.

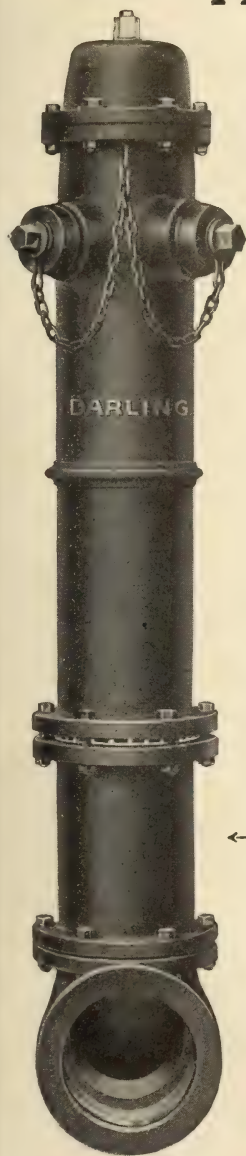
The Kennedy Valve Mfg. Co.

BRANCHES: 95 John St., New York; 228 N. Jefferson St., Chicago; 47 India St., Boston; 23-25 Minna St., San Francisco. SALES OFFICES: Salt Lake City, Seattle, El Paso.

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How Does Your City Handle A Raised Street Graae?



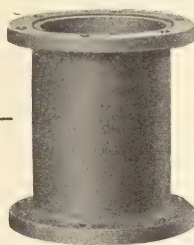
THE Darling Fire Hydrant is, to the best of our knowledge, the only hydrant that can be altered to take care of raised street grades or a fill-in in a simple, inexpensive and practical manner.

An extension section can be furnished of any desired length from 6" to 60" and inserted between the lower barrel flange and base flange.

This change in length can be made in the Darling Fire Hydrant without disconnecting the base of the hydrant from the line, for Darling Hydrants close with the pressure and the valve is at the lowest flange joint.

Every city must anticipate future developments which will necessitate some changes in street grades. Since it is becoming common practice to choose one type of Hydrant for the entire equipment, this exclusive Darling feature justifies your investigation of many other desirable points of Darling Hydrants.

← EXTENSION
SECTION



Our catalog shows the simplicity of valve construction and the accessibility of the barrel for oiling and cleaning. We would like to send you a copy.

DARLING VALVE & MANUFACTURING CO.
WILLIAMSPORT, PENNA.

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DARLING

FIRE HYDRANTS

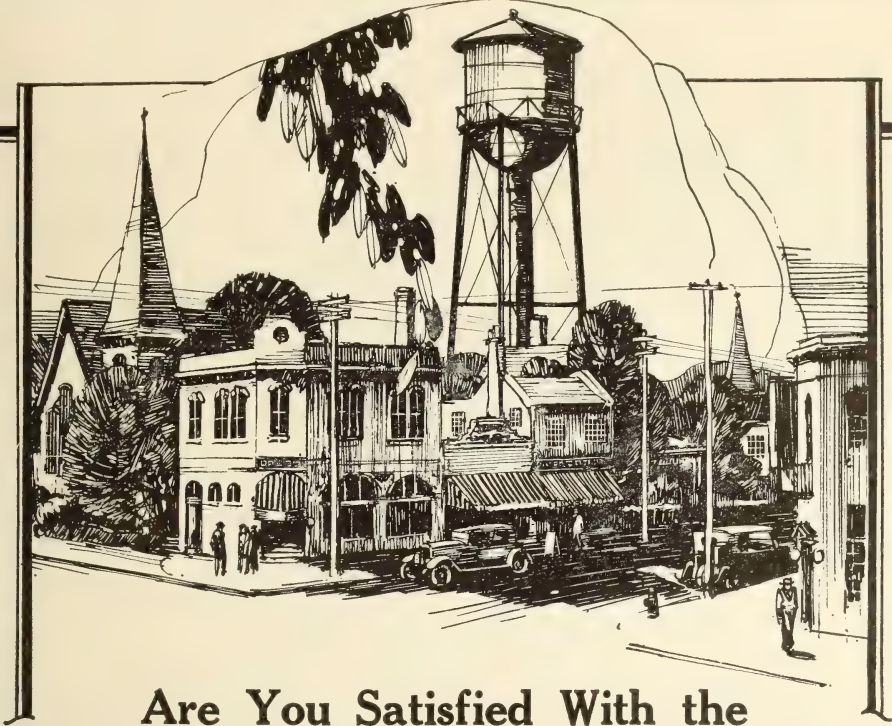
296 SEPARATE LEAKS LOCATED

In a Pitometer water waste survey covering 600 miles of mains in Boston, Mass., 296 separate leaks were located, of which 244 were on lead services, 44 were blown joints, 2 were broken mains and 6 miscellaneous. These leaks ranged in size from a nail hole in a $\frac{5}{8}$ -inch lead service, wasting 5,000 gallons per day, to a broken 4-inch pipe, discharging 660,000 gallons per day into a trunk sewer. A total of approximately 10,250,000 gallons per day of leakage was discovered and stopped. Tests of large meters showed a daily loss through underregistration in excess of 2,000,000 gallons per day and one case of illegal unmetered service was found.

A PITOMETER SURVEY

discovered these losses in revenue in Boston. Pitometer engineers can perform a similar service for your city which will save thousands of dollars and hundreds of thousands of gallons of water now going to waste. Water which must be impounded, filtered, chlorinated and pumped costs money, so that every leak is a distinct financial loss to the water department. Send us your name and address, that we may forward you a list of the cities in the United States which have had Pitometer surveys. You will be surprised at the number of cities that have profited by water waste surveys conducted by Pitometer engineers.

THE PITOMETER COMPANY
52 CHURCH STREET - NEW YORK CITY



Are You Satisfied With the Water Supply in Your Town?

When Monday comes around will Mother have plenty of clean, fresh water for wash-day? Are you free from worry about the quantity and quality of the water supplied to your factory? Perhaps the supply is inadequate during "peak" hours, or the water deposits scale on your boilers.

And then there is the fire risk—your own home, your neighbor's, the building your business is housed in—if fire breaks out will there be plenty of water at sufficient pressure to protect your property? How pitiful to watch your life-savings go up in smoke when a few gallons of water would save the day!

This is your problem whether you are the mayor, the burgess, fire-chief or private citizen. A Pittsburgh-Des Moines elevated steel water tank will store practically any amount of water and deliver it at constant pressure. The cost is low—bring this matter to the attention of the proper authorities. One of our engineer-salesmen will be glad to call upon them and go into the matter in detail. Tanks, filter systems, water mains—anything connected with water supply.

Write today for catalogue No. 34.

Pittsburgh-Des Moines Steel Co.

834 CUREY BLDG., PITTSBURGH, PA.

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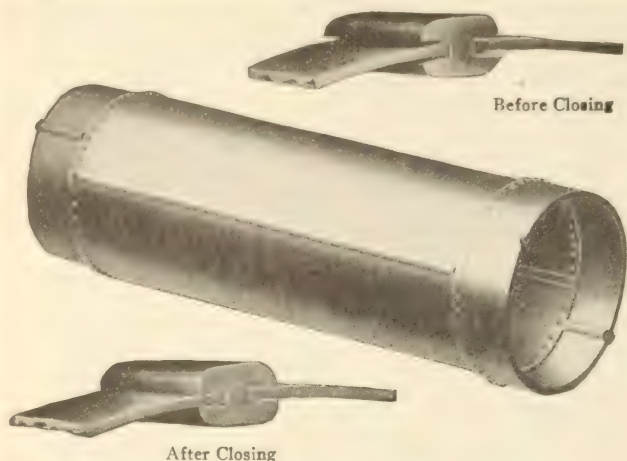
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PITTSBURGH DES MOINES



Lock Bar Steel Pipe—

The Only Pipe with the 100% Joint—

STRENGTH—The Lock Bar Joint is as strong as the steel itself.

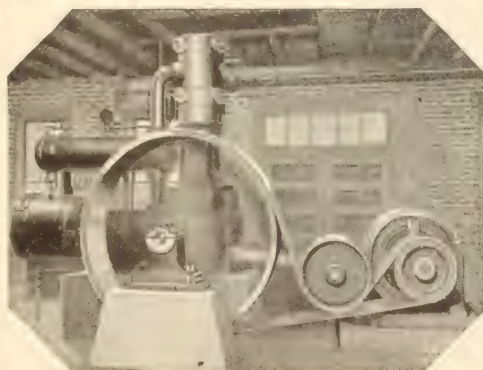
CAPACITY—Will carry 15% more water than riveted pipe because of smooth interior, absence of rivets, and joints 30 feet apart.

DURABILITY—Satisfactory service upwards of 70 years.

EAST JERSEY PIPE COMPANY

7 Dey Street,

New York City



Air Lift Pump Efficiency

Depends largely upon the efficiency of the compressor you select, to pump your wells.

Sullivan Angle Compound Compressors, like this one at the Picher, Oklahoma City Water Works, are noted for their power economy, freedom from shut-downs and high air end efficiency.

Ask to see an Angle Compound. There's one in your vicinity.

Bulletin 377 B

SULLIVAN MACHINERY CO.

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FOR PIPE USERS

TAYLOR'S SPIRAL RIVETED PIPE

Offers great strength, durability and economy. For high pressure water supply and intake mains and piping for special purposes. Send for copy of our production book giving full information.

AMERICAN SPIRAL PIPE WORKS

P. O. Box 485

CHICAGO, ILL.

The Best Material for **CALKING**
Joints in Cast Iron Pipes is

Ulco Lead Wool

IN ROPE FORM

Write for particulars to

UNITED LEAD COMPANY

111 BROADWAY, N. Y. CITY



Big Pipe or Small

LOCK JOINT" products consist of Sewer Pipe, Culvert Pipe, Pressure Pipe and Subaqueous Pipe, all of which are made of the best quality of reinforced concrete. The Sewer and Culvert Pipes are made to provide for the reinforcement of one pipe to overlap the reinforcement of the adjacent pipe, thereby securing a joint as strong as the pipe itself. Size of pipes 24 to 108 inches. The Pressure Pipes are all provided with tight expansion joints. Size of pipes 8 to 108 inches. The Subaqueous Pipes are provided both with a rigid type of joint and a flexible type. Size 24 to 108 inches.

In the aggregate many hundreds of miles of "Lock Joint" Pipe, varying in diameter up to nine feet, have been installed and all of these lines are continuing to satisfactorily perform all the functions for which they were designed.

Lock Joint Pipe Co.

15 Rutledge Ave.

Ampere, N. J.

LOCK JOINT

Reinforced
Concrete Pipe

When writing to Advertisers please mention THE AMERICAN CITY.

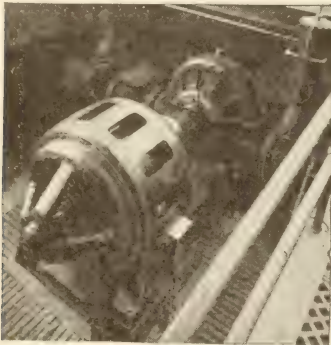
If You Buy Power You Want High Pump Efficiency

WHERE power is bought by the K. W. hr., the value of pump efficiency is easily reduced to dollars and cents.

De Laval centrifugal pumps in water works service have regularly shown the highest efficiencies, as, for example, 87% at Toronto, 86% at Montreal and 86% at Minneapolis.

The 20-in. motor-driven De Laval pump shown in the accompanying photograph was recently tested by the City of Baltimore, and gave the following results:

Mill. Gal. per Day	Net Head feet	Kilowatt Input	Motor Efficiency	Overall Efficiency	Pump Efficiency
0.00	209.45	225.60	92.38		
3.856	214.97	308.64	92.9	35.23	37.92
8.126	215.73	409.15	93.4	56.07	60.03
11.921	212.17	492.86	93.6	67.16	71.75
15.942	204.28	570.82	93.6	74.66	79.76
19.413	189.81	609.12	93.55	79.16	84.62
23.403	166.73	628.32	93.5	81.27	86.92



The De Laval centrifugal pump has been specially designed for motor drive. It requires only a low starting torque, and has a power limiting characteristic, that is, it takes the maximum power at the delivery corresponding to maximum efficiency. De Laval pump efficiencies are extremely high and a motor can be used which will give its best efficiency and power factor at the normal load.

Ask for Special Publication B, 64

De Laval Steam Turbine Co.

Trenton, N. J.

285

Cast Iron Pipe for Water and Gas

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials.

Sizes 2- to 60-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

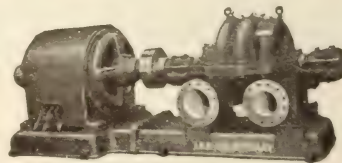
Warren Foundry & Pipe Co.

formerly

Warren Foundry and Machine Co.

Sales Bowling Green Building, New York City
Offices: 201 Devonshire Street, Boston, Mass.

LECOURTENAY PUMPS Centrifugal



Pumping machinery for every kind of pumping service.

LECOURTENAY COMPANY

8 Maine Street, Newark, N. J.

DEAN

ELECTRIC CONTROL UNIT
FOR THE MOTOR OPERATION OF LARGE
GATE AND GLOBE VALVES

WRITE FOR BULLETINS
PAYNE DEAN LIMITED

CHICAGO STAMFORD, CONN. NEW YORK PITTSBURGH



City of CHICOPEE, *Mass.*

The 12-inch Universal Pipe water supply installation here, laid through sand hills, was handled with great ease and rapidity.

"I am very much pleased."—
John F. Sullivan, Supt. Water Dept.

UNIVERSAL CAST IRON PIPE

standard 6-foot lengths—no pouring, no calking
—no bell holes—tight, flexible, dependable : :

THE CENTRAL FOUNDRY COMPANY

Subsidiary of

IRON PRODUCTS CORPORATION

41 East 42nd Street, New York

Sales Offices:

New York

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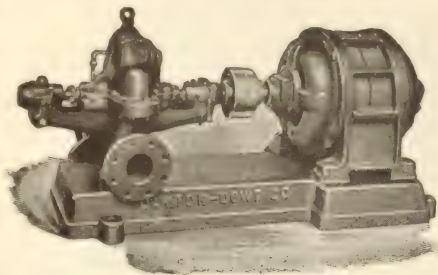
Birmingham

Dallas

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DAYTON-DOWD CENTRIFUGAL PUMPS



You can depend on Dayton-Dowd
Centrifugal Pumps

Catalog on Request.

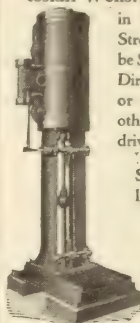
DAYTON-DOWD CO.
346 YORK STREET, QUINCY, ILL.

Offices in principal cities.

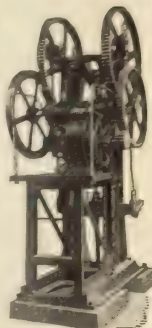


DEEP WELL PUMPS

Downie Deep Well Pumps are offered for Heavy, Continuous Service in Deep Artesian Wells. They are built in Double and Single Stroke Models and may be Steam Driven, Belted, Direct Geared to Motor, or equipped for any other standard form of drive.



Smaller Pumps for lighter service.



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Downie Centrifugals, single and multi-stage, Catalog 801.

Keystone Driller Company

170 Broadway, New York; Monadnock Block, Chicago; Joplin, Mo.

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Security Sewer Rods



Security Rods are made from second-growth hickory, with malleable iron couplings swedged or 'shrunk down very tightly on the curved places at end of sticks. Security couplings cannot come off.

Joint and unjoint easily and quickly—light weight—long runs easily made. No slack but lend themselves to all practical bends.

They cannot buckle or uncouple in the duct.

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A DEEP WELL PUMP

OF EXCEPTIONAL MERIT

"THE POMONA"

Double Stroke Deep Well
Power Pump

A Size for Every Well

Manufactured by

UNITED IRON WORKS, Inc.
Kansas City, Mo.

Send for catalog if it
is deep-well pumping

"TELL US YOUR TROUBLES"

**CAST IRON
HOUSE DRAINAGE
FOR SANITATION**

**IN THE
BUILDING
UNDER THE
GROUND**

**USE SOIL PIPE WHERE SOIL PIPE SHOULD
BE USED**

**SOIL
WASTE
VENTS
LEADERS
DRAINS
SEWERS**

**LASTS LONGER
THAN THE BUILDING**

There can be no half-way security
cast iron soil pipe should be used for *all* house drainage
clear out to the main sewer in the street

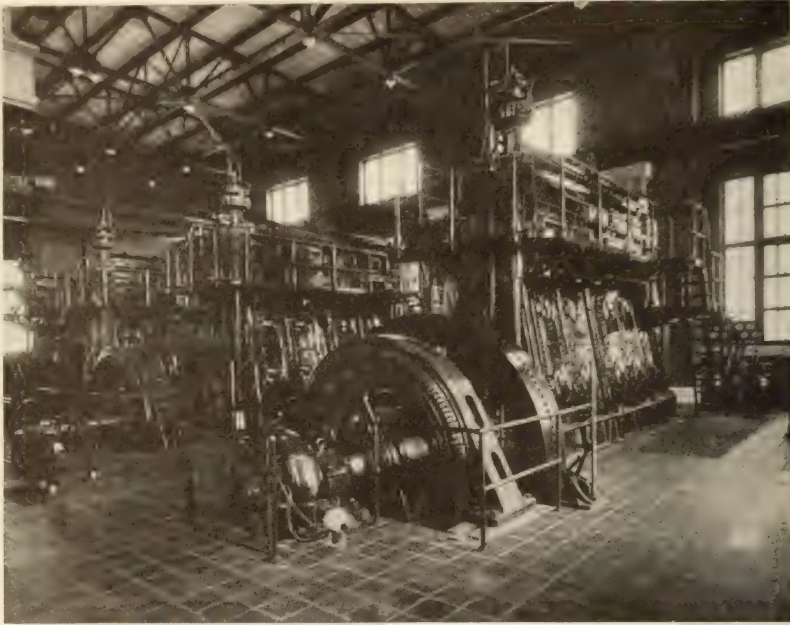
No corrosion, no deadly sewer gas, no tearing out of walls and floors, no costly replacements—where **cast iron soil pipe** is used for soil, waste, vent and leader lines.

No pollution of cellars, no stoppage by tree roots, no danger of breakage by jar or settlement, no tearing up of cellar floors and streets, no costly replacements—where **cast iron soil pipe** is used for house drains and house sewers.

Every one interested in sanitation should have the Cast Iron Soil Pipe Specification book. Write nearest address

Krupp Foundry Co.....	Lansdale, Pa.
National Foundry Co. of N. Y., Inc.....	10 Sanford Street, Brooklyn, N. Y.
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Modern Plumbing Codes Demand CAST IRON for ALL House Drainage Piping



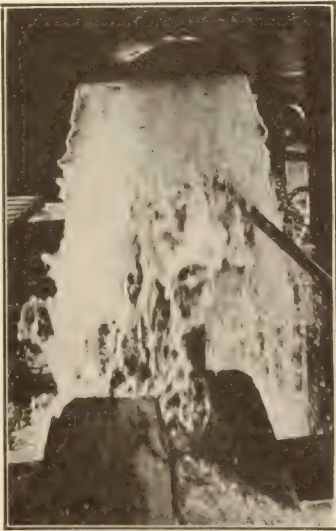
When in Chicago visit this 3000 H.P. Busch-Sulzer Four Unit Plant
Sanitary District Station at 125th and Indiana Avenue.

BUSCH-SULZER BROS.-DIESEL ENGINE CO.

New York, 60 Broadway

ST. LOUIS, MO.

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993 Gallons per Minute
Dosch Chemical Company

SOME SPLASH!

The Dosch Chemical Company of Louisville, Ky., recently installed one of our Indiana ECONOMY Air Lift Pumps in their 10 inch well, 120 feet deep.

With their former Air Lift a maximum of 450 gallons per minute was obtained. With the ECONOMY Pump an actual test showed 993 gallons per minute.

If your well is not delivering what you need, tell us your well conditions and water requirements and let our Engineers make definite recommendations. And with no obligations attached.

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INDIANA AIR PUMP COMPANY - Indianapolis, Ind.

LETTERS FOR YOU



DID YOU GET THE SIXTH LETTER?

We mailed it to you last week—or—*just a moment*—perhaps your name is not on our list! If it isn't, *send it in now*—for Bill has made six trips to the Neptune Plant to see how we make Trident Meters and his letters to friend Jim are classics of easy-to-understand description.

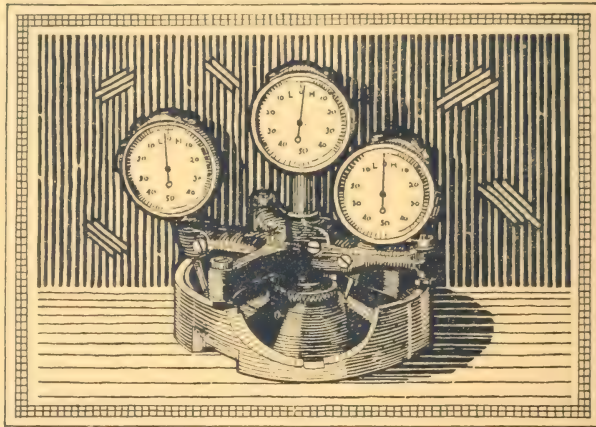
You may *know* well enough that Trident Meters are interchangeable, accurate and durable—but never appreciated, *why?* Here is your chance to learn the reason, through the "Dear Jim" letters. Write for your back (and future) copies today.

NEPTUNE METER COMPANY

50 EAST 42nd STREET, NEW YORK
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ATLANTA • LOS ANGELES • SEATTLE
PORTLAND • ST. LOUIS

Makers of the Trident Water Meter

THE HEART OF THE METER



"When you consider that on the smooth and accurate operation of the disc and the disc chamber depends the first step in water measurement, it is easy to understand why the Neptune folks finish up the disc meter with such jewel-like precision." This is what Bill wrote to friend Jim in the fourth letter of the now-famous "Dear Jim" series. If you are not now receiving this series of letters, send your name and address and all of the letters mailed to date will be sent to you.

NEPTUNE METER COMPANY

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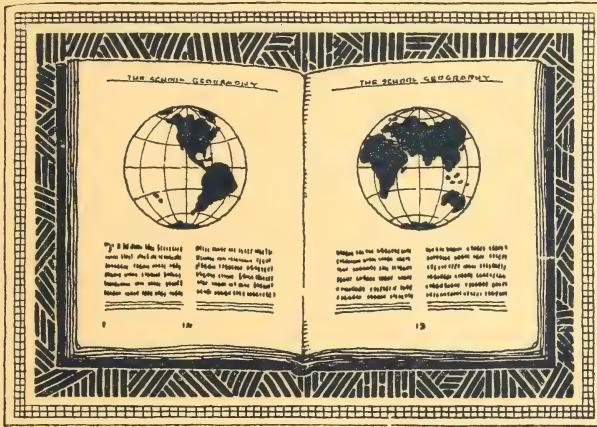
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Makers of the Trident Water Meter

BUILDING THE DISK



Think of it—diamonds from South Africa, and rubber from South America—and what becomes of them—that's what Bill talks about in his fifth letter. He isn't talking about pirate treasure, but the sort of truth that is stranger than fiction. He tells the beginning of the story of the disc inside the Trident meter. You will find this fifth letter from Bill's trusty pen, written after his latest visit to the Neptune Plant, intensely readable. Have you received it yet? Write for all these letters!

NEPTUNE METER COMPANY

50 EAST 42nd STREET, NEW YORK

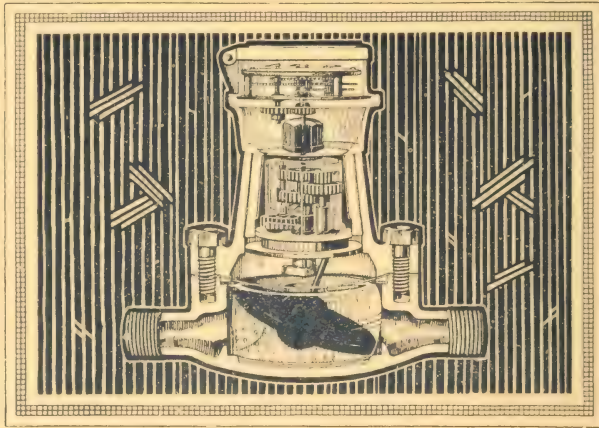
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Makers of the Trident Water Meter

INSURING GEAR TRAIN ACCURACY

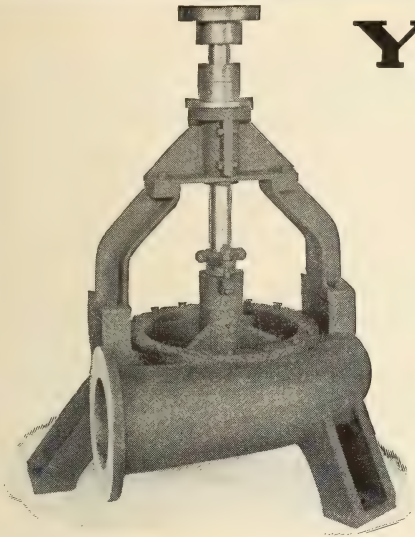


The gear train of the Trident meter is a marvel of accuracy and interchangeability. It is gauged 73 times—no wonder the gear train runs accurately. Held in the hand it looks complicated, but the story of the finishing and assembling and testing of its 27 parts, as told in Bill's latest letter to friend Jim is a joy to the man who appreciates how things go together and what makes the wheels go 'round. Letter No. 6 is in the mail now. Watch for it.

NEPTUNE METER COMPANY

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Yeomans vertical centrifugal suction-type pumps driven by low-speed, direct-connected motors automatically controlled give the maximum reliability and durability for lifting the sewage of low city districts and preventing floods. The heavy casings with large water passages and perfectly balanced open impellers insure non-clogging by heavy sewage.

Leaflet E-20 descriptive of sewage pumps for municipalities, real estate subdivisions, etc., sent free on request.

Yeomans Brothers Company

1417 DAYTON ST., CHICAGO

Canadian Representatives—Darling Brothers, Limited, Montreal

McINTOSH & SEYMOUR CORPORATION Main Office and Works, AUBURN, NEW YORK INDUSTRIAL DIESEL ENGINES

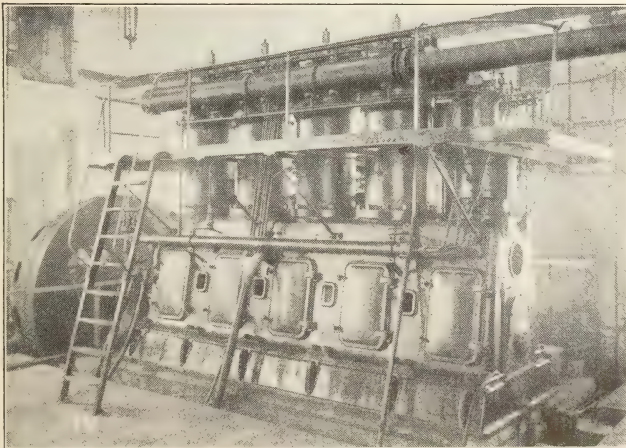
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Mo.

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Bldg.,
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Bldg.,
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400 B & P UNIT IN MUNICIPAL CENTRAL STATION

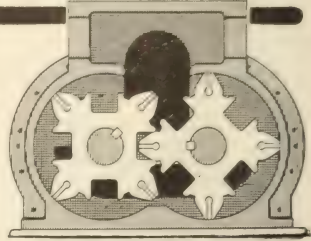
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The Best
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and Pumping
Plants.

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"MORE GALLONS PER HORSE POWER"

For Installation on Motor Driven Fire Apparatus

More Than 1000

NORTHERN ROTARY PUMPS Have Been Sold

Why?

First, Because of the easily renewable packing strips which automatically take up wear.

Second, Because the very high efficiency is maintained many years, due to lack of wear.

Third, Because of the extremely effective Lateral Ports which eliminate vibration and lengthen the life of the entire equipment.

Fourth, Because of the long established and well known policy of the Company for fair and honest dealing.

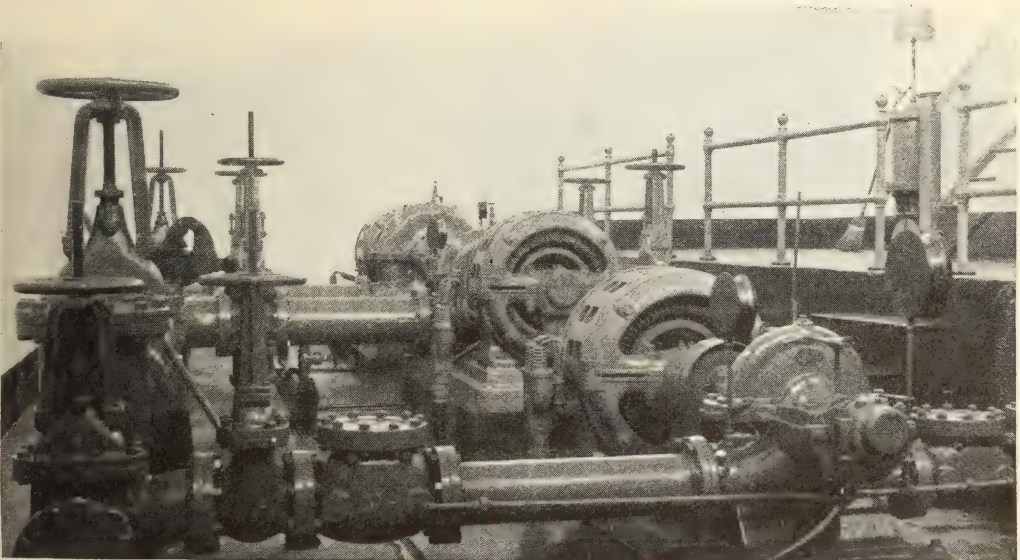
Northern Rotary Pumps Can Be Installed on Any Chassis.

NORTHERN FIRE APPARATUS CO.
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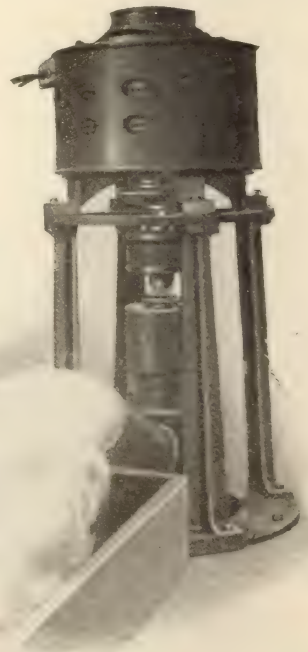
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*Water Supply Contractors
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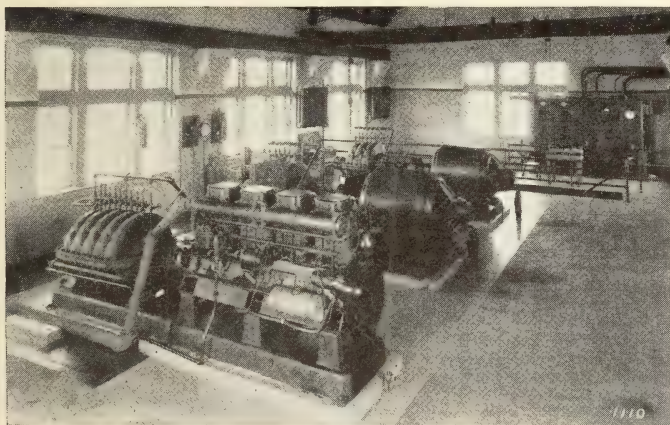
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With power off because of some mechanical trouble or coal shortage, your streets dark, your citizens fearful, apprehensive; do you know that well-lighted streets add to their security? Why not investigate



STANDBY POWER for driving

electric generators, and centrifugal pumps? For emergency lighting, for fire protection or domestic water supply?



8 cylinder, 240 H.P., 1200 R.P.M. **STERLING**, on five-stage Lecourtenay, centrifugal pump, 1050 G.P.M., 650 ft. head at Ironwood, Michigan. On one occasion ran 9 days constantly, supplying town with water. Specifications by Alword, Burdick & Howson, Consulting Engineers, Chicago, Illinois.

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50 to 300 H.P. in single units.
600 to 1500 R.P.M. — centrifugal
pump and electric generator speeds.

STERLING ENGINE CO. Dept. C-11 **BUFFALO, N.Y., U.S.A.**

Alundum Safety Tile

makes school house
steps slip-proof—
never wears smooth
—outwears any other
material used for
stairs. Economical
because of its long
life.

T-60

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showing a wide selection of design for City Parks,
Play Grounds, Jails, Courtyards, Cemeteries,
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Sales and Construction Representatives in Principal Cities

FOR CLEAN STREETS AND CATCH BASINS

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Excelsior Ornamental Wire Fence

Ideal for parkways where strength and good looks are the features required.

The fabric with its strong clamp construction, hot galvanized after assembling and the sturdy galvanized steel framework to withstand hard climatic conditions, enable the Excelsior to render service expected of it as guardian of the public property.

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Sewer Joint
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Patent Rights for Sewer Cleaning Device

We offer for sale the patent rights on a new sewer cleaning device. We will sell the patent outright. The patentees have been specialists in this field for twenty-five years and have produced, in this invention, a marvelous sewer cleaner.

A fortune awaits the man or company that secures this U. S. Patent. We want to hear from reliable parties who can finance a purchase of this kind.

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for "OVERSIZE" Playground Apparatus. You know what we mean by Oversize — Everything made better than demanded—stronger than usually thought necessary—assuring a satisfaction greater than expected. Oversize means Safety — permanent safety. The little folks have put their trust in us, and we shall continue to justify that confidence. Good enough will not do—it must be Best. Let us work with you on your plans.

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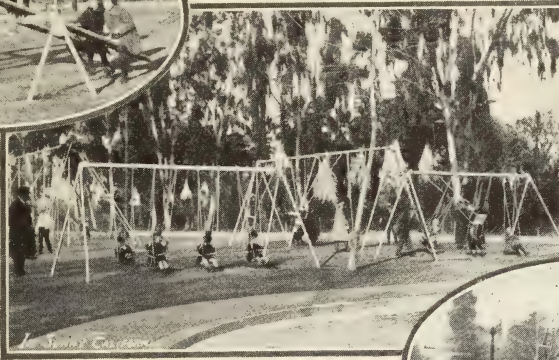
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"Safeguarding
the Child, you
mold the Man."



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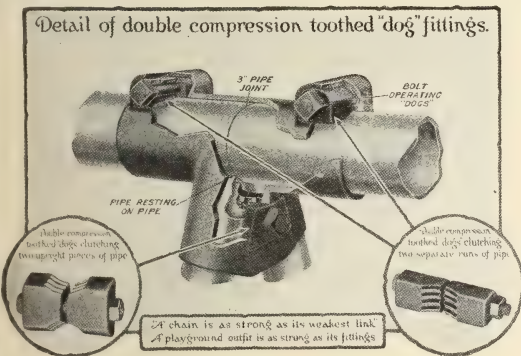
STANDS
WEAR
AND
TEAR



Margins of Safety Everwear Playground Apparatus

has a "margin of Safety" built into each and every part of from 500 to 1,000 per cent. Details are considered essential, *not to be slighted.*

Detail of double compression toothed "dog" fittings.



We sincerely believe that, if you will examine EVERWEAR you will Standardize on it.

Write for our 52-page illustrated catalog.

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(a vitally important detail)

are brutes for strength—examine them—note the patented "Double Dog" clamping device as it gives an element of Safety found in no other. Each pipe is securely and rigidly held by 10 sq. inches of positive clamping surface. The Pipe *cannot* work loose once the "Double Dogs" set their teeth into it. There are no holes to drill nor set screws to worry about in EVERWEAR FITTINGS; this alone means quick, economical erection and SAFETY always.

Fittings and Apparatus Details are vital to the man who knows.

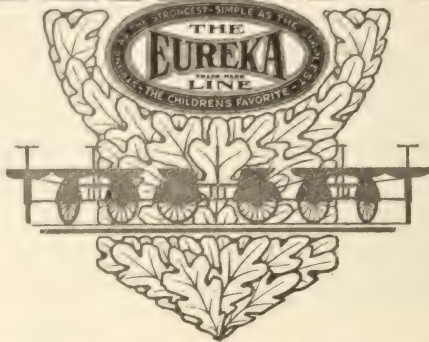
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ALL STEEL PLAYGROUND APPARATUS

EFFICIENCY
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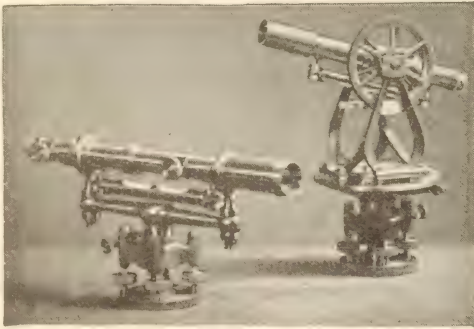


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MANUFACTURERS OF
PARK AND PLAYGROUND EQUIPMENT
SANDUSKY, OHIO, U.S.A.

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The Ashland Manufacturing Company
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FROM MAINE TO MEXICO, “Fun-Ful” apparatus satisfies all:

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uses over one hundred
MUSHROOM TRAFFIC
LIGHTS

ESSCO MANUFACTURING CO.
DEPT. A PEORIA, ILL.



The **MOST PRACTICAL TRAFFIC GUIDE**

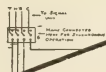
The Lehman Traffic Guide is an investment in the safety of your citizens for both pedestrian and vehicular traffic. This marker cannot be damaged by the heaviest loaded truck nor can it in any way be injured by a vehicle accidentally driven over it. It is lighted at night by two bulbs which shine through ten $3\frac{1}{2}$ -inch ruby lenses. This traffic guide can be built to fit any size manhole, thus doing double duty as a traffic guide and a manhole cover. The Lehman Traffic Guide is thoroughly covered by patents. It stands but five inches high, is oval in design and has a hand hole in the top. It is conspicuous at night, and due to color and design is very attractive by day.

ELKHART FOUNDRY
and MACHINE CO.

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ELKHART - INDIANA

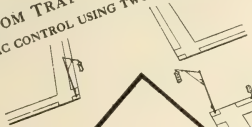




connect the mains T, H, and R to different contacts at a distance varying the "period" of signal. M also connects the "traffic change" signals, and "go" signals to the "go" common return of the relay.

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mat
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pla
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MUSHROOM TRAFFIC CONTROL SYSTEM
AUTOMATIC CONTROL USING TWO 24 INCH LANTERNS



MUSHROOM TRAFFIC CONTROL SYSTEM
AUTOMATIC CONTROL USING FOUR 16 INCH LANTERNS
AND MUSHROOM TRAFFIC UNIT

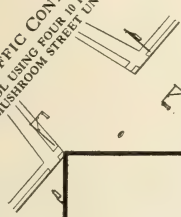


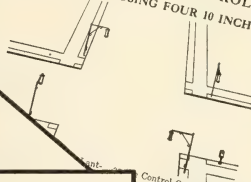
Fig. 5 t

MUSHROOM TRAFFIC CONTROL SYSTEM
AUTOMATIC CONTROL USING 2 1/2 INCH
SIGNAL LANTERN ONLY

Figure 1



MUSHROOM TRAFFIC CONTROL SYSTEM
AUTOMATIC CONTROL USING FOUR 10 INCH LANTERNS



Control Cabinet, and a four conductor
from this Foot Control to the Con-
troller is desired to use Manual Control only.
Control Cabinet may be omitted. In this
case, the roof control wire should be
connected to the lighting service.
Two wires run from the
Mechanism. Two
from the Foot
Control as in the Auto-
matic.

In Fig 7 there are
four units. (See page 6)
upper bracket, lower
bracket, mounting
Mechanism. (See page
6)
with Semi-Auto-
matic. (See page 6)
upper bracket, lower
bracket, mounting
Mechanism. (See page
6)
except using Manual
Control. (See page 6)
upper bracket, lower
bracket, mounting
Mechanism. (See page 9)
are desired, add to
page 9.

MUSHROOM
"STOP AND GO"
TRAFFIC CONTROL
SYSTEM

A FEW PAGES FROM OUR
INTERESTING BULLETIN ON

TRAFFIC CONTROL

CALL UPON US FOR ADVISORY SERVICE
ESSCO MANUFACTURING CO.
DEPT. S . . . PEORIA . . . ILL.



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Prices*

**The Casey-
Hedges Co.**

Chattanooga,
Tenn.



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"COPPERWELD"

TRADE MARK REG. U.S. PAT. OFF.

GIVES GREATER SAFETY AND
COST LESS PER MILE YEAR

LINE WIRE
TWISTED PAIR
GROUND RODS

Data on Request

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BRADDOCK, P. O., RANKIN, PA.

Hazard

RUBBER-INSULATED
WIRES & CABLES

HAZARD PARKWAY
Cables for dependable
service in street-lighting.

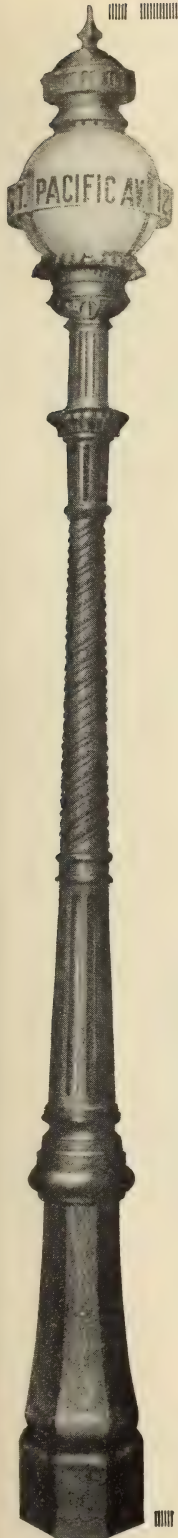
HAZARD SPIRAL-
WEAVE Tree Wire is a
long-wearing and service-
giving wire for overhead
construction.

*"Made for Users Who Want
The Best."*

HAZARD MFG CO

WILKES-BARRE PA

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PITTSBURGH	DENVER
1st Nat'l. Bank Bldg.	1415 Wazee Street
BIRMINGHAM, ALA.	
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WELSBACH LIGHTING SYSTEM

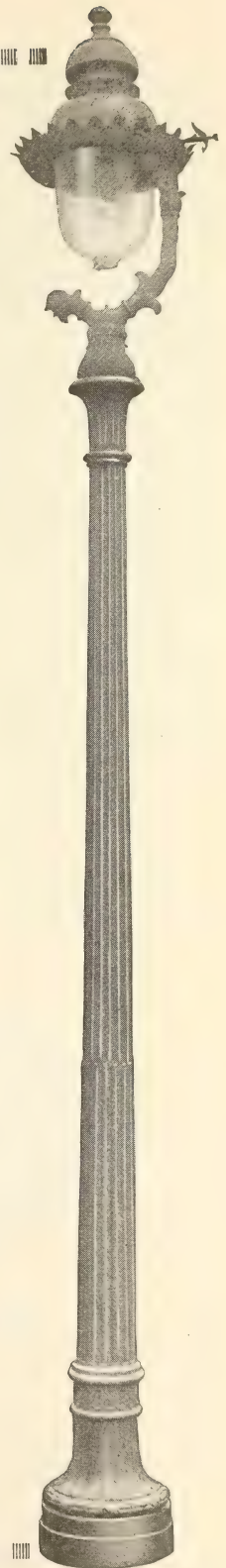
WITH quick appreciation the principal cities have recognized the unexcelled qualities of the Welsbach System of Gas Street Lighting.

Better lighting leads to additional safety and security—greater safety of traffic and full security against crime and disorder.

There are many other good features of the Welsbach Gas Street Lighting System which lack of space prevents us from enumerating. On request we shall be

*Glad to send you all the detailed
Information you desire*

**Welsbach Street
Lighting Co.
of America
PHILADELPHIA**





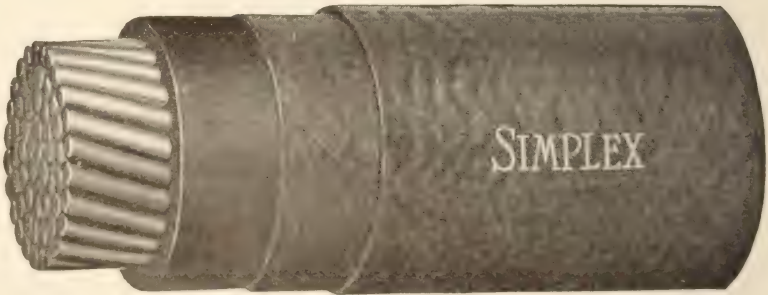
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WITH THESE LIGHTS. GET OUR CIRCULARS

The **BEST TRAFFIC LIGHT CO.** 1129 W. WASHINGTON ST.,
EAST PEORIA, ILL.



Rubber Covered Wires and Cables

National Electrical Code Standard



*Complete detail specifications for your files upon request.
Ask for Simcore Specifications No. 2053.*

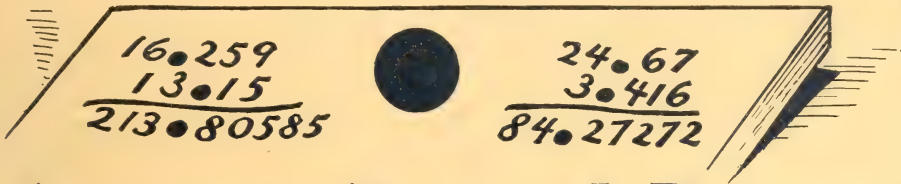
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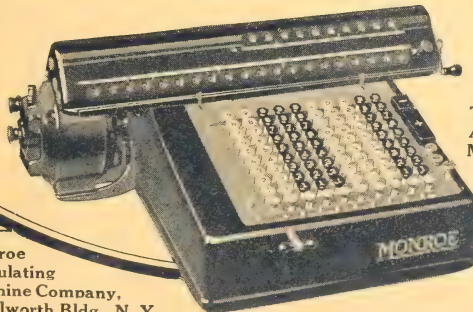
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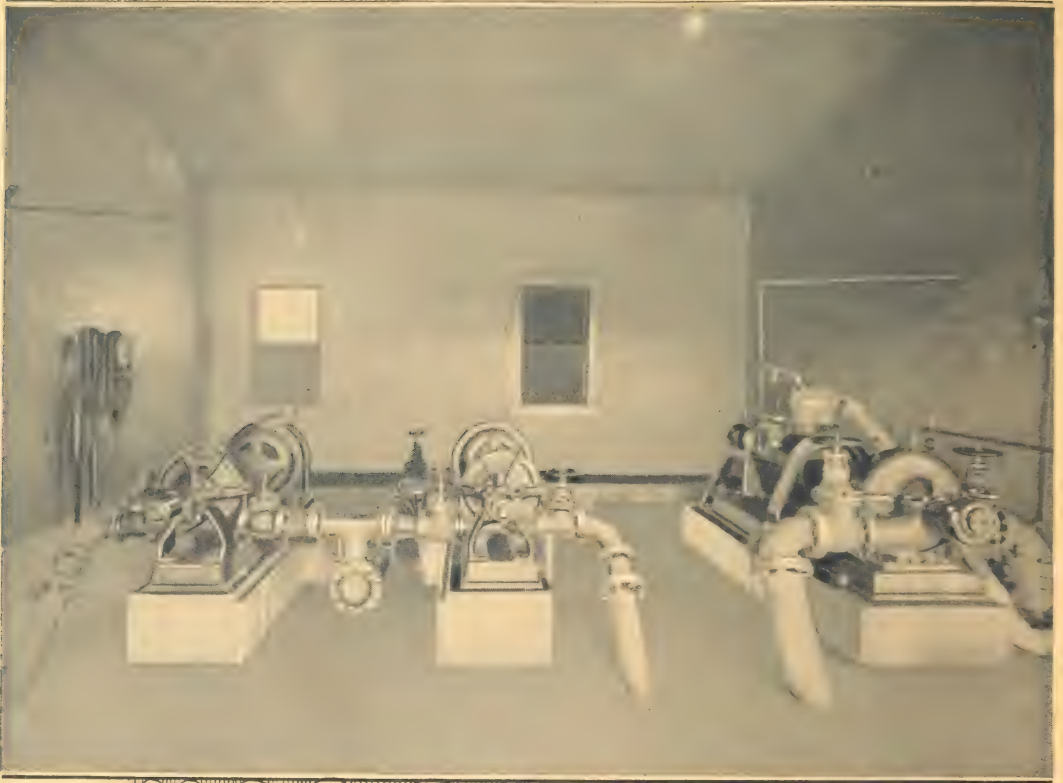
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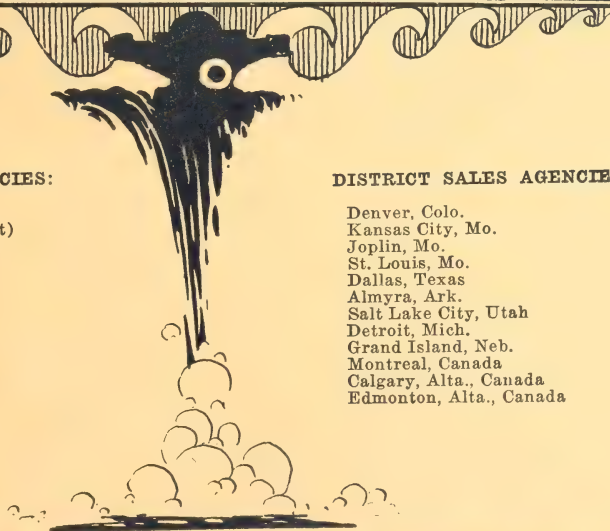
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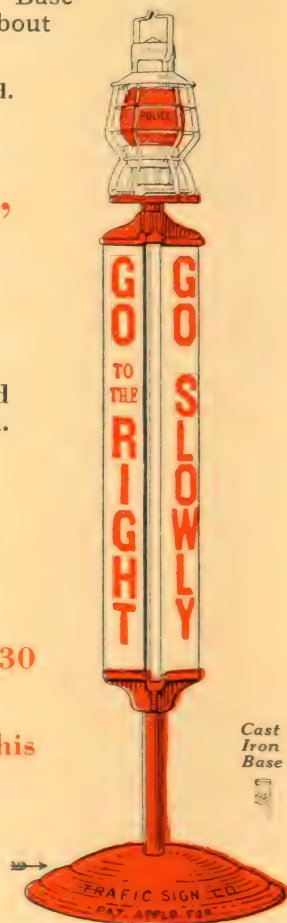
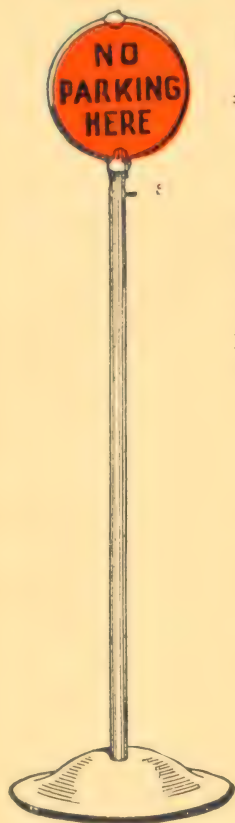
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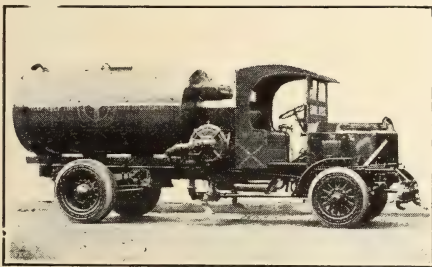
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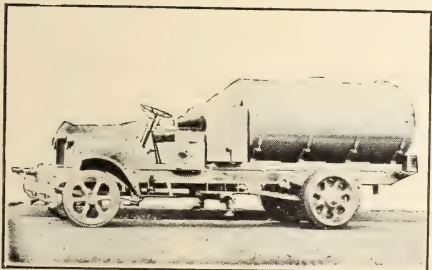
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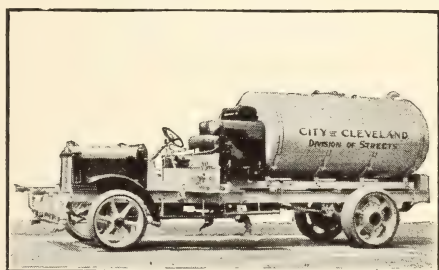
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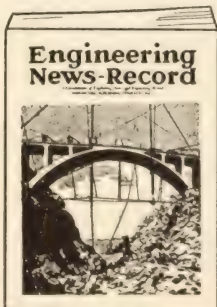
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The American City Magazine

Published monthly by The Civic Press, 443 Fourth Avenue, New York—EDGAR J. BUTTENHEIM, President and Manager
HERBERT K. SAXE, Treasurer—L. P. Anderson, Advertising Manager
Branch J Chicago, 123½ West Madison St.—Tom Dix, Vice-President
Offices I San Francisco, 320 Market St.—W. A. Douglass, Pacific Coast Representative

Vol. XXVIII

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Volume

XXVIII

Number 4

The American City Magazine

New York

April

1923

Threefold Foundation of Playground Success

THE expenditures of most American cities for playground equipment and supervision would be fully justified if playgrounds could do nothing but furnish wholesome *fun* for the community. There would be ample justification for such expenditures if a higher standard of public *health* were the only benefit possible. Similarly, the money would be well spent if the playgrounds could serve no other purpose than to train the *character* of the coming generation. But the modern municipal recreation system, if properly managed, will serve its community in all three of these essentials, and the argument for adequate appropriations, if based on this threefold foundation of playground success, will meet with favorable response in every forward-looking American city and town.

Fun is the birthright of every child and the prerogative of every adult. And fun is a human right in a far finer sense than that of mere pastime; for there are values inherent in clean sport and wholesome fun which far transcend that of "passing the time." Indeed, that anyone should wish, under normal conditions, merely to pass the time, is indicative either of a lack of imagination or of facilities to satisfy the imagination.

Health in the modern community is compounded of the mental and physical characteristics and habits of the individual and of the environment in which he lives. The highest skill of the sanitarian and the doc-

tor can be set at naught by the ignorant or deliberate delinquency of the individual. To help in overcoming such tendencies through efficient methods of physical education and body-building is the second of the three big contributions of the playground system to the public welfare.

Character is an attribute which is said by many alarmists to be conspicuous chiefly by its absence in the young people of today. With such views THE AMERICAN CITY has little sympathy; but we must recognize that the youth of the twentieth century are beset by certain temptations which either did not exist or had not become so clever and alluring in previous centuries. Herein lies a challenge which our community

FUN
HEALTH
CHARACTER

leaders—civic, religious and educational—must meet unless they are willing to admit that the powers of darkness must always be wiser in their generation than the children of light. The whole leisure-time problem must be given increasingly intelligent study; and such study will demonstrate, we are sure, that the playground can be made a factor of prime importance in the building of character. Statistics are already available as to the reduction in juvenile delinquency in neighborhoods adjacent to properly supervised play fields. Such preventive work, supplemented by training in clean sportsmanship and team play will bring to the coming generation increased mental and moral stamina of great importance to the future of mankind.

America Revisited--A City Planner's Impressions

A Comparison, by One of England's Foremost Town Planners, of Traffic Problems in American and European Cities

By Raymond Unwin

VISITING a number of American cities after a lapse of eleven or twelve years, one is struck by the enormous increase in the difficulty of moving about in the towns. So many motor cars are now in use that the value and time-saving capacity of each car has been greatly reduced. Particularly is this the case in the larger towns, where the difficulty and delay in getting about have certainly increased to a very considerable extent, owing to the stoppages at the very numerous cross-streets which result from the American system of planning, and owing to the difficulty of finding a place to park the car anywhere near the spot that is being visited.

It is a not uncommon experience now, in an American town, to find that it has taken as long to make a short journey by car as it would have done to walk. In parts of New York and Chicago, and probably in certain other cities, this traffic difficulty is so great that matters have almost reached a deadlock. In some cases, the queue of cars waiting to cross a street is two or three times the length that can be allowed to cross at one halt of the opposite traffic, and cars may have to wait through two, or even three, halts before their turn comes to cross one of the streets.

As compared with European towns, there are three circumstances which increase the difficulty in American cities:

1. The number of cars in proportion to population is very much greater in America—I should guess five to ten times as great.

2. Owing to the high buildings, the number of people wanting to occupy and use any piece of street is again from five to ten times as great as in an ordinary European city.

3. The general system of planning, which consists in a repetition of rectangular building blocks in a regular or sometimes irregular checker-board plan, results in the

maximum interruption of traffic owing to innumerable cross-streets, and in the minimum amount of natural sorting out and routing of traffic, such as takes place where main highways are planned or have grown up in such a manner as to link up the important centers and subsidiary routes in proper relation to them.

I am informed that in America there is on the average one motor car to every ten people, which means that in many cities the proportion of cars to population is much higher. It is time seriously to consider whether it is practicable to provide such a large street area as will allow all the citizens to move about the towns in their own cars. From 1,000 to 10,000 people may be working in a single lofty building, such as are found in the chief American cities, and if the normal proportion of cars is allotted to these people, it will be evident that no street area which it is possible to provide adjacent to such buildings would accommodate such a number of cars as would be required to enable the owners to use them for going to and from their business. Indeed, there are parts of New York in connection with which it has been calculated that the total street area does not provide standing room for more than one-third of the people who may be occupying the buildings in that area during the daytime; and that if they were all to try to occupy the adjacent streets at one time, they would have to stand upon one another's heads three deep. Not only does it seem to be impossible that such concentrated populations can move about comfortably in their own cars, but it appears to be equally impossible to deal satisfactorily with the resulting traffic in any form of public conveyance. If a new subway is opened, buildings may be erected on a few blocks which will practically occupy the full capacity of the subway at the busiest hours.

Disadvantages of Checker-Board Planning

The general system of planning in America does not lend itself to the free movement of traffic along the streets, and certainly does not tend to economy in street areas or to apportioning street areas according to the volume of traffic that they are likely to carry. With a checker-board street system there is no natural routing, no nearest way from one important point to another, unless both points happen to be on one street. There is a tendency for development to take place to an excessive

The delay on all main streets in a town of a checker-board plan, due to the innumerable interruptions liable to occur at every cross-street, is one which seriously aggravates the difficulty of dealing with traffic in most American cities—a difficulty which is already great enough owing to the number of motor cars and the height which has too often been adopted for the buildings. Moreover, this system of development applied to residential districts proves to be exceedingly costly. In areas occupied by single-family dwellings especially, the

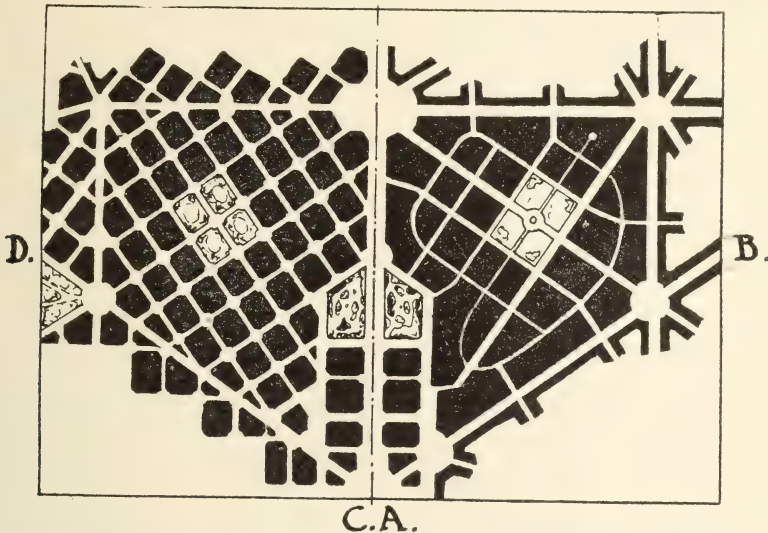


DIAGRAM SHOWING HOW THE PLANNING OF SUBSIDIARY STREETS IN RELATION TO THE MAIN ROADS PREVENTS TRAFFIC FROM BEING DISTURBED, AND THE FACADE OF THE BUILDINGS UNDULY BROKEN. CONTRAST THE FEW BREAKS AND CROSSING-POINTS ON THE ROAD A B WITH THOSE ON C D

extent along the lines of the roads leading from any important center in the two cardinal directions. Owing to the fact that no street is free from the liability to be used by main traffic, because every street, in turn, may offer an equally good route from one point to another, it is necessary to require a minimum width for all streets, which, in itself, is very extravagant and leads to much unnecessary waste of space and cost of street works. On the other hand, there being no clearly marked main routes, it is not easy to select a few main highways for traffic and not only construct these of adequate width, but also protect them from too frequent interruptions by cross-traffic—two equally necessary conditions for a good highway.

amount of road frontage which has to be provided and the amount of street area which has to be constructed and maintained per house is remarkably high as compared with what is common in similar development in Europe; and there is little doubt that this expensive and extravagant system of road provision is largely responsible for forcing people in the towns to build high blocks of apartments instead of self-contained houses.

At any rate, the preference of large numbers of American citizens for the self-contained house is quite evident, and, so far as one can judge, is increasing;—certainly, there appeared to be larger areas of this kind under development in the cities I visited than I noticed twelve years ago.

If this very healthy preference for the self-contained family house is to be provided for adequately, the question of a more economical kind of development is one deserving careful study on the part of owners of land, realtors, and city planners. It is not uncommon to find that the proportion of road-making and other similar development expenses per plot is two or three times as high as it would be in the garden city type of development in England. It is not clear that any advantage is obtained by this excessive road-making, and it certainly involves the creation of a multitude of opportunities for the interruption of traffic by needless cross-streets.

Wastefulness of Land Overcrowding

It has been realized in England for some time that the overcrowding of buildings upon land is a much more wasteful proceeding than at first sight appears; that, in fact, there is a very rapidly diminishing return of value and efficiency from such overcrowding, and that by properly adjusting the character of development and the amount of road-making to the number of houses put upon the land, it is usually possible to give ample space and garden ground at little, if any, greater cost than is involved in the more wasteful crowded development, which eats up the land with increased road area and leaves a diminishing amount to be divided among an increased number of houses. My observation of American cities leads me to think that there may be a not altogether dissimilar reducing return of efficiency from the piling up of stories one upon another.

Certainly, comparing London and New York, one is not conscious of any reduction in the distances which have to be traveled to get about the town or to get out of the town. Indeed, it seems to me to be more difficult to get out of New York to live in comparatively suburban or country surroundings than it does to get out of London; and the time occupied in keeping a number of appointments and getting from one to another in New York seems to be no less, and, indeed, frequently greater, than would be required in London. No doubt, if the appointments can be confined to people occupying the same building, there may be some economy of time. Economy in cost, however, is not so clear, and it would be interesting to know what

is the relative cost of vertical transport as compared with horizontal. When the area of building occupied by elevators is included, and allowance is made for the small number of people conveyed in each journey, it is a question whether considerably higher cost would not be shown for the vertical transport.

In the past, owing to the large volume of free immigration which has taken place in the United States, American cities have grown with such rapidity that they have had little enough time to do more than keep pace with the increase of population in the readiest and most obvious manner; and when all the circumstances are considered, the achievement of the modern American city is a very wonderful one. The solution of the problem of the high building, if it had to come, has been a masterly achievement of the American architects and engineers. With the limitation of immigration, this first rush may perhaps be abated and time and opportunity be available for more careful study and more deliberate planning of the future development of the American cities. The growth of the city planning and zoning movement during the last twelve years is a very remarkable testimony to the efforts which are being made to bring this great city development under proper control and to give it the necessary skilled guidance. It may be that further study of the problems involved, in the light of the changing conditions, will indicate the desirability of increasing the number of new towns rather than increasing indefinitely the size of those which have already reached or are rapidly reaching unwieldy dimensions. In regard to the latter, it may be possible to set bounds to their indefinite spread and to provide for their further growth by means of detached and properly arranged suburbs, satellite towns, or garden cities, so organized as to be self-contained as far as possible. While enjoying some benefit and making some contribution to the definitely centralized functions of the parent city, the satellites will have their own localized life, so to speak, consume their own smoke, and to the least possible extent complicate the transport and other difficulties of the present city. At least, this is the direction in which I see most prospect of finding some solution for many of the problems presented by the great modern city.

Is Chlorination Necessary for Municipal Water-Supplies?

Here Are the Answers from Some Typical Cities in Indiana

SOME city officials have the idea that the chlorination of a filtered water-supply or of a deep well supply is in the class with earrings—merely a decorative frill that is not necessary but simply gives a more comfortable feeling. One superintendent in Indiana states that the city water is filtered naturally and they do not use chlorination except in extreme emergencies. "Extreme emergency" means that typhoid organisms may have been well distributed throughout the city by contaminated water before it is realized that the emergency exists, and then "after the horse is stolen, the door is locked." If instead, at the expense of a few cents a day, all water was chlorinated, there would be no need of worrying about the possible extreme emergency.

In Terre Haute, which has the best-advertised and probably the most popular water company in the United States, Dow R. Gwinn, the President and Manager of the company, says he believes there is a direct relation between the number of city water consumers and the typhoid death rate. Owing to the ease with which water can be secured from the ground in Terre Haute, the company has for years had a less number of consumers than there are in most cities. For instance, after the company had been in business for 27 years, with a population of 35,000 at that time, there were only about 2,000 consumers. There is some question as to when chlorination really began in Terre Haute. In 1911, a hypochloride of lime apparatus was installed. In 1915, electrolytic cells for making chlorine gas were installed. In 1918, a Wallace & Tiernan apparatus was first used.

Beginning with 1908, the company has

kept a record of the typhoid deaths on premises supplied by the plant. This record would probably correspond more closely to the average record of the ordinary city where city water is used by practically all the inhabitants. The typhoid deaths per 100,000 on premises supplied from the plant were as follows: 1908, 0; 1909, 8.5; 1910, 7; giving an average of 5.2 cases per year for the three years prior to chlorination. The cases for the five years after the be-

ginning of chlorination were: 1911, 3; 1912, 5; 1913, 3; 1914, 3; 1915, 2; an average of 3.2 cases per year, showing an advantage in favor of chlorination.

In Evansville, Ind., chloride of lime was first used in 1913 and liquid chlorine in 1918.

For the two or three years prior to the beginning of chlorination, the typhoid death rate was 72 per 100,000, and for the five years after chlorination, 7 per 100,000. Charles Streithof, Superintendent of Water Works, believes that both filtration and chlorination are necessary for municipal water-supplies.

In Sheridan, Ind., chlorination was first used in November, 1921. The exact typhoid death rate is not known, but there have been no epidemics in Sheridan, and since chlorination began no cases of typhoid have been traceable to the municipal water-supply. One well, which was known to be contaminated, was successfully treated with chlorine without filtration. O. E. Layton, Secretary-Treasurer of the Sheridan Water, Light, Wells & Heat Company, states that he believes chlorination is an insurance against trouble.

In 1909, the Seymour Water Company, Seymour, Ind., began the chlorination of its water-supply. Prior to that time, there were one or two cases each year in the

Unanimous Agreement

These brief paragraphs represent a cross-section of opinion from one state chosen at random, but it will be seen that there is practically unanimous agreement that chlorination of municipal water-supplies is necessary and that it has been beneficial in reducing water-borne typhoid in cities wherever used.

8,000 population, but since chlorination began no cases have been traceable to it. W. F. Peter, Superintendent, believes that chlorination is not generally effective without filtration, and that chlorination is necessary for practically all municipal water-supplies.

New Albany, Ind., has a population of about 25,000 supplied by the New Albany Water Works, owned by the Interstate Public Service Company. Chlorination was begun in 1916. The typhoid death rates for the five years prior to chlorination were: 1912, 5; 1913, 5; 1914, 1; 1915, 4; 1916, 4. Since that date the rate has been: 1917, 6; 1918, 5; 1919, 2; 1920, 1; 1921, 2. J. O. Endris, Jr., Superintendent of the New Albany Water Works, states

that the effectiveness of chlorination, with or without filtration, depends entirely upon the nature of the raw water, but that chlorination is absolutely necessary for municipal water-supplies.

The Valparaiso Home Water Company, Valparaiso, Ind., began filtering its water-supply in 1908 and began chlorinating in 1916. There has never been a case of typhoid traced to the city water-supply in Valparaiso. J. F. Bradley, Chief Engineer and Bacteriologist of the company, believes that chlorination is not generally effective without filtration, as its effectiveness is dependent upon the amount of iron or other oxidizable matter present. He says that, generally, chlorination is necessary for municipal water-supplies.

Cost of Pavement Repairs in Newark, New Jersey

A Method of Determining the Most Economical Pavement for City Streets

By J. W. Howard, C. E.

Consulting Engineer, New York City

NEWARK, N. J., is a manufacturing city of 500,000 population. It has heavy traffic of motor vehicles, not only within the city, but connecting it with New York, Philadelphia and other places. The streets are well paved and kept in good repair. The cost of repaving or maintaining each kind of pavement is analyzed and tabulated so as to determine what kinds of pavements are most economical for city streets.

The Annual Report for 1921 of the Director of Public Improvements shows the cost of repairs per square yard of pavement bases and of surface layers separately and

added together. The total of paved streets on December 31, 1921, was 282 miles. The principal kinds of pavements are shown in the table below.

The city has an excellent municipal asphalt paving plant, equipped with storage bins, conveyors, steam rollers and street tools. This plant cost \$76,355, not including the land. The plant repairs all old asphalt pavements and lays some new ones on new locations. The cost of repairs made by the city plant in 1921 to the pavements which have passed the five-year guaranteed periods of the original contractors is shown in the following table:

COST OF 1921 PAVEMENT REPAIRS BY NEWARK, N. J., CITY ASPHALT PLANT

Kind of Pavement	Surface Layer		Concrete Base		Total Both*
	Sq. Yds.	Per Sq. Yd.	Sq. Yds.	Per Sq. Yd.	
Sheet asphalt	51,499	\$1.8126	3,979	\$2.3318	\$4.1439
Granite block	27,815	1.5262	1,131	2.6651	4.1913
Brick	8,679	3.4968	3,236	4.1820	7.6788
Asphalt block	126	4.2169	59	2.9908	7.2077
Wood block	4,168	4.4164	3,487	†1.5341	5.9505

* "Total Both" means where surface and base were repaired at same locations.

† Repairs to base of wood block pavement consisted of replacing injured 1-inch mortar cushion with another on the existing good 6- or 8-inch concrete base below.



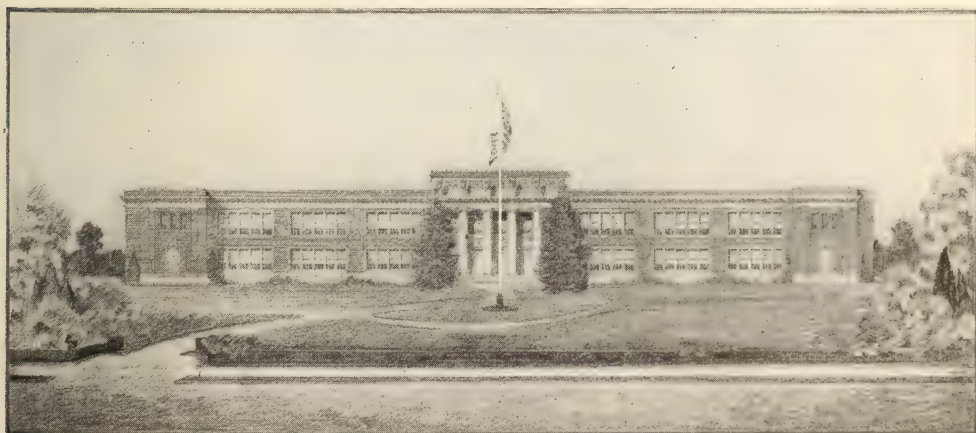
NEW CONSOLIDATED GRAMMAR AND HIGH SCHOOL, LAUREL, DEL.

Fine Schools for Small Towns

A TRUST fund of approximately \$4,000,000, established by Pierre S. duPont for rebuilding the schools of Delaware, is being administered by the Delaware School Auxiliary Association, which is the Educational Committee of the Service Citizens of Delaware. Architects, engineers and professional assistants of high standing were secured for this work. The needs of the field were carefully studied by Drs. Strayer and Engelhardt of Columbia University, and their counsel is being followed as closely as possible. It is not planned to rebuild all the schools of Delaware, but to make a demonstration that will insure that other school buildings will be of the same high standard. One of

the new consolidated schools for white pupils is shown at the head of this page. It has 18 rooms and an auditorium, and can accommodate 600 pupils. It cost \$225,000, of which the Laurel Special School District raised \$55,000 and the Delaware School Auxiliary Association gave \$200,000. The town of Laurel has a population of 2,253.

Below is shown the new High School building for which Madison, N. J. (population, 5,523), on February 2, 1923, voted \$300,000. It will have 21 classrooms with a total capacity of 500 pupils, and special department rooms with accommodations for 150. The combination assembly room and gymnasium will seat 700.



MADISON, N. J., HAS VOTED TO BUILD THIS NEW HIGH SCHOOL

Unusual Paving Contract Proves Successful

Colorado Springs, Colo., Saves \$290,000 on Paving Project

COLORADO SPRINGS has recently completed the paving of 8 miles of city streets under conditions that are of unusual interest to every community. The pavement was laid by the Colorado Springs and Interurban Railway Company, the local street car utility, which was under a contract with the city to do the work at actual cost. In addition to accomplishing the work at a figure which is about \$200,000 less than the lowest contractor's bid, the street car company has just turned over to the city a complete paving plant, valued at \$90,000, making a total saving to the taxpayers of \$290,000.

The original estimate of the City Engineer called for an outlay of about \$1,100,000 for paving four principal thoroughfares of Colorado Springs with 2 inches of asphaltic concrete laid on a 5-inch concrete base. The first bids received from contractors in January, 1921, were considered too high, and all were rejected. The city again advertised the project, and again rejected all bids in March of that year as being still too high, though a reduction of \$45,000 from the January bids was made.

About that time, the trustees of the Myron Stratton Home, which owns the street car company, became interested in the paving project. Two considerations influenced the trustees: as the largest single taxpayer in the city, the Stratton estate was keenly interested in having the work done as economically as possible; and as public-spirited citizens the trustees wanted the community to derive the advantages from more paved streets.

After due consideration, the Stratton estate trustees submitted a proposal to the City Council whereby the street car company offered to do the paving at actual cost, the city to acquire title to the complete paving plant and equipment after the work was finished, and the city to have the right to take over the contract at any time it saw fit. To comply with the provisions of the city code, which called for a formal bid on the project, the street car company submitted a written agreement offering to

do the work for \$5,000 less than the lowest bid received from any contractor, or for a sum not to exceed \$864,000. Despite considerable opposition from paving contractors, the city awarded the street car company a contract in June, 1921.

When it was awarded the paving contract, the street car company was without organization or equipment of any description for work of this kind and was forced immediately to purchase the necessary machinery and to develop an organization. Russell H. Kimball, an experienced paving man, was hired as superintendent, and was in charge of the project until its completion. The last bit of surfacing was laid in the fall of 1922, or fifteen months from the day the contract was awarded. The contract called for completion of the work in two years.

How They Did It

In addition to its large central mixing plant, the company also built a stone-crushing and screening plant at Victor, Colo., where it used 70,000 tons of rock from the dump of the Vindicator gold mine in the Cripple Creek district. All the coarse aggregate for the concrete base and asphaltic surface was crushed rock from this plant.

In view of the light average cut of approximately 6 to 7 inches which prevailed over the entire paving district, the company used the following method for the excavation work: One 10-ton Holt Caterpillar, an Austin Rip Snorter combination scarifier and blade machine, and two Barber-Greene bucket loaders were purchased. The scarifier and blade machine, with the Holt tractor, piled the earth in long windrows about 5 feet wide and 30 inches high, after which the B-G loaders elevated the dirt into wagons.

Through the use of the central mixing plant and motor trucks for hauling the mixture to the work, the concrete operations were conducted on a decidedly economical basis. Both fine and coarse aggregates were maintained in bins of approximately



SCENES FROM THE RECENT COLORADO SPRINGS PAVING JOB

1. One-cubic-yard Smith concrete mixing plant now owned by the city of Colorado Springs under the provisions of its contract with the Colorado Springs and Interurban Railway Company. 2. Rock-crushing and screening plant at Victor, Colo. The plant is composed of two No. 5 Allis-Chalmers gyratory crushers, one 10 x 18 jaw crusher and one 6-inch pair of rollers. 3. Holt 10-ton tractor towing Austin Rip-Snorter combination scarifier and blade grader during grading operations preparatory to paving. 4. Laying a 5-inch concrete base on North Cascade Avenue. 5. Laying concrete foundation on West Colorado Avenue without interfering with the operation of the double-track car line. 6. A stretch of pavement 50 feet wide between curbs on East Platte Avenue, showing Pike's Peak in the background

650 cubic yards capacity, the bins being constructed underneath a railway trestle, where material was received in steel-bottom dump-cars and emptied directly into the bins. Aggregates were conveyed from underneath the bins by means of a conveyor belt to a double elevator, which carried the material up to an auxiliary 20-cubic-yard bunker. This, in turn, discharged directly into the measuring batch hopper, where, in turn, the material was fed directly into a 27-cubic-foot Smith tilting mixer.

Cement was received in car-loads on the same trestle and unloaded directly from cars to batch hopper by gravity chute. When the plant was not in operation, cement was conveyed to a storage warehouse by gravity chute from the same car location. The warehouse had a capacity of 10 car-loads and was kept filled to capacity. When the plant was in operation and without cars of cement on the track, cement was delivered to the batch hopper by means of an inclined conveyor belt from the warehouse. The same labor handled the cement in both instances.

The total mixing plant labor costs were 3½ cents per square yard, while the costs of power, repair parts, maintenance, interest and depreciation were 2½ cents per square yard.

The plant had an average output of 5-inch concrete base of more than 2,300 square yards a day, the biggest day's run being 419 cubic yards, working 9 hours. The average mixing time was 1 minute and 20 seconds, and the average haul 2 miles. The plant was the feeder for ten 3½-ton and four 5-ton trucks. The cost of street labor for laying the 5-inch foundation was 4½ cents per square yard.

The company's paving department constructed its own asphalt mixing plant, using two old ore roasters, 66 inches in diameter, which were extended to 20 feet in length and were fed by conveyor belts from the

rock and sand bunkers. The roasters were fired by internal combustion fuel oil burners. The heated aggregates were elevated and screened into a 20-cubic-yard steel bunker. This, in turn, fed in a weight box on a five-beam scale, which discharged the material into a 16-cubic-foot pug-mixer. Mexican asphalt purchased from the Standard Oil Company of Louisiana was supplied in tank cars and was run by gravity from the cars into a concrete sump having a 70,000-gallon capacity. The sump was fitted with sufficient steam-heated coils to maintain the asphalt at a temperature of from 280 to 300 degrees in the heated end of the sump. Asphalt was pumped from the sump direct to the pug-mixer. Limestone dust was used as a filler.

The cost of the asphalt mixing plant was slightly more than \$11,000, and it delivered the 2-inch surfacing material at a cost of 12 cents per square yard for plant and street labor. Power, coal and fuel oil, repairs and repair labor amounted to 7.2 cents per square yard. Constructing the asphalt wearing surface involved a liquid seal coat with a stone chip squeegee. Two 8-ton tandem rollers were used, the average specific gravity obtained for the completed pavement being 2.21. The contract also involved the installation of more than 76,000 lineal feet of curb and gutter as well as a large amount of storm sewer.

Now that the work is completed, is the city satisfied with its novel paving contract? One of the best answers to that question may be found in the fact that since the street paving was finished, the city, on its own account, has paved all the alleys in the business district, using the paving plant it acquired under the terms of its contract with the street car company and employing the company's organization. It is also planning to pave North Nevada Avenue, one of the main north-and-south thoroughfares, during the next construction season.

What Cities Spend for Street Lighting

According to the latest available data, the average total municipal expenditure per capita for street lighting for all cities in the United States of over 30,000 population in 1919 was \$21.23. Of the \$5.25 spent for safety and protection, 72 cents was for street lighting. The over-all service purchased by the \$5.25 expenditure could be greatly improved by a reallocation which would increase the street lighting budget by a few cents.

—A. F. DICKERSON.

Clean-up Campaigns---and After

THE futility of community clean-up campaigns that are merely "a lick and a promise," and the effectiveness of real campaigns, well planned and properly conducted, are emphasized in the 1923 spring "Extra" of *Spotless Town News*, published by the National Clean-up and Paint-up Campaign Bureau. Says the editor:

"A 'day' is merely pathetic, and a 'week' is hardly long enough to make even a fair start.

"Make it a 'campaign' and *keep it up* as long as may be necessary to do a real job; then renew it on the same basis, spring—and fall, to 'get ready for the indoor months.'

"That's the first essential of any successful community effort in such work.

"The second essential is to publicly commit to the new order of things, whatever is cleaned up; for example, converting the unsightly dump into a playground, or painting the vacant lot with the green of grass and shrubbery or a thrift garden—but, however it be done, 'clothe it in the garb of righteousness,' and thereafter its cleanliness and orderliness will be respected by everybody.

"These facts are generally realized most of all by those city officials who look after the community cleanliness and health, and generally with inadequate budgets. It is impossible for them to coordinate their efforts with those of every householder within a six-day period, though the public cooperation that can be enlisted in a real campaign is invaluable to them, and to the community, in the visible and lasting results secured and in the sense of personal responsibility for continuous care-taking in these matters that is inculcated by such a campaign.

"To 'get the habit' is the thing, and that never can be done in the annual bath of a 'day' or a 'week.'"

For communities which have not yet completed plans for their 1923 clean-up work, many valuable suggestions can be obtained on application to the National Clean-up and Paint-up Campaign Bureau, Pontiac Building, St. Louis, Mo.

From Cleveland, Ohio, THE AMERICAN CITY has received the complaint blank shown below, which was published last spring in the newspapers and of

which many thousands were also distributed in the schools. These were used as a means of discovering bad conditions not remedied during the intensive period of the clean-up campaign. Miss Ruth F. Stone, Executive Secretary of the Community Betterment Council of Cleveland, writes:

"We had 2,943 complaints following last year's clean-up campaign, which were divided for types under the following divisions:

Lack of garbage collection.....	245
Unsanitary conditions, reported to the Division of Health	1,500
Lack of street cleaning, reported to the Division of Streets	829
Defective sewers or catch-basins, reported to the Division of Engineering.....	16
Unsanitary toilets in the public parks, reported to the Department of Parks and Public Property	5
Fire menaces, reported to the Fire Marshal...	31
Smoke nuisances, reported to the Division of Smoke and to the Women's City Club, which are conducting a Smoke Abatement Campaign in cooperation with our work.....	48
Bad moral conditions and bootlegging, reported to the Police Department.....	5
Complaint reported to the Animal Protective League	1
Miscellaneous complaints received from suburban communities	263

"It is the expressed opinion of these officials, and especially of the Commissioner of Health of Cleveland, that our work is of great assistance to them in following definite and bona fide complaints which otherwise do not reach their attention. Dr. H. L. Rockwood, Commissioner of Health, has assured me that the 1,500 reports referred to his department alone give his Sanitary Police much more definite data than are otherwise secured through the casual telephone reports that drift into his office.

Make—Keep Cleveland Clean and Bright

The Community Betterment Council
509 Electric Building (Main One)

I wish to report the following unsanitary and unclean condition existing

at _____

Check Condition Complained of	Remarks—Detailed
Dirty Street, or Alley, or Lot	
Garbage Collection Needed	
Rubbish or Ash Collection Needed	
Clogged Catchbasins, or Sewers	
Dirty Coop, Pen, or Kennel	
Yard, Dump, or Other Dirty Places	
Smoking Chimneys (dense smoke)	

Reported by _____

Phone _____

Address _____

"The educational phase of this work as it reaches school children is, of course, one of the most valuable things we do. We feel that in a large industrial city, with 75 to 80 per cent foreign-born population, much education is needed by the children of these families in understanding and interpreting to their parents what the city ordinances are and what responsibility devolves upon the citizens to cooperate with the city officials toward making these ordinances effective.

"Following our campaign of this year, which is already under way with the Clean-up Week scheduled for the last week in April, it is our plan to go into various districts of the city

the rest of the year and through organization with mothers' clubs and other neighborhood groups to do a more intensive piece of educational work. We shall have cooperating with us in this effort the Cuyahoga County Public Health Association. Tentative plans have been prepared for Health Weeks in these districts, during which talks will be given on sanitation, baby care, care of the pre-school-age child, mouth hygiene, nutrition, and other topics relating to a health program. We are working in this way toward a year-round program on health education, making the spring campaign only one intensive effort to facilitate the proper cooperation between city departments and the people."

Street Sanitation Officials in Clean-up Campaigns

IN the discussion at the last annual conference of the International Association of Street Sanitation Officials, several of the delegates outlined the methods used in their respective cities in conducting clean-up campaigns. The following statements, based on this discussion, may offer suggestions to officials and organizations which have not yet perfected their plans for a clean-up week or other special waste-disposal effort for the spring of 1923. In general, it may be said that the experience of most cities has shown that the newspapers are usually very glad to give special publicity to such a campaign, and that the cooperation of schools, civic organizations, Boy and Girl Scouts, and the citizens generally, can readily be secured.

St. Louis

The annual spring clean-up week in St. Louis is a joint effort of the various city departments. With the help of a publicity agent, they start their educational campaign through the newspapers, and otherwise, the last week of March, and the campaign is pretty well prepared before the last week in April.

On every team of each of the various departments, a placard is placed, reading "Clean-up Brigade." The teams start at the west side of the town and work toward the river, beginning Monday and continuing until Saturday. The police distribute a circular letter to each household, with instructions to have all household rubbish collected and placed in the alleys at the occupant's gate on the day when the Brigade will pass through that territory.

Especially valuable aid is secured from the women's organizations and the paint trade, which last year contributed \$2,000 to help in the work.

The sanitary officers, in the two months before clean-up week, go through the houses and yards and into the basements and make an inspection, pointing out to the householder what he should get rid of. After the clean-up week, the paint people put on a paint-up campaign

and in that way they get back their \$2,000.

Richmond, Va.

In Richmond the clean-up week is handled by the Department of Public Works. City equipment is used, except when necessary to secure one or two contractors to help in hauling out the material. The clean-up campaign secures in one collection much rubbish that would have to be collected piecemeal later, and it therefore cuts the expenses of cleaning throughout the year. Not only is rubbish taken from the households, but the alleys and streets are given a thorough cleaning.

Evanson, Ill.

There is no definite clean-up week in Evanson, but an unusual amount of rubbish is collected on moving days in May and October. Also two or three times a year the fire department makes an inspection of basements, corners and other places which should be cleaned up. The waste is thrown into the alleys and collected by the city.

Normally 450 cubic yards of rubbish are collected from the 43,000 people in the city. A large quantity of Chicago newspapers, amounting to between 125 and 150 yards a day, are collected. The rest of the rubbish is miscellaneous material, such as bed springs, baby carriages, wash boilers, gas stoves, etc.

Boston, Mass.

The clean-up period in Boston extends over much time. There are two weeks for publicity and two weeks of actual clean-up of everything that is put out in alleys and public streets. During the rest of the year the refuse must be placed in wood barrels for paper, and metal barrels for ashes and rubbish.

Clean-up time is a four-weeks affair throughout the entire state of Massachusetts, and there is a great deal of interest shown by civic organizations. The New England Clean-up and Paint-up Campaign Committee offers a \$500 silver loving cup as an annual prize to the "cleanest town" in New England. This trophy was captured by Boston five years ago. Since then smaller towns have done better work, as they have had more effective cooperation from school children, newspapers and the public.

Utility and Beauty versus Extravagance in Street Planning

By Frederick Bigger

Architect and Town Planner, Citizens Committee on City Plan of Pittsburgh

IT is an old theme that utility and beauty are not irreconcilable. One of the views here shown illustrates this point, the contrasting view having "extravagance" written all over it!

These two views of streets in Pittsburgh appear in a recent issue of *Progress*, the monthly organ of the unofficial Citizens Committee on City Plan of Pittsburgh. The editor of *Progress* selected these views to bring home to the people of the city the strong contrast between

a properly and an improperly designed residence street. In technical journals this differentiation has been made many times by the use of diagram cross-sections of streets. These are frequently confusing to

the layman. Consequently there is an advantage to the latter in examining photographs of actual examples. The writer has used these contrasting views constantly in city planning talks given locally during the



WIGHTMAN STREET, PITTSBURGH, PA., IS AN INSTANCE OF EXTRAVAGANCE IN STREET PLANNING

last eight years.

In the view of McPherson Boulevard the layman can see at once that the street is more attractive than the contrasting view of Wightman Street. In the latter it is evident

that the wide roadway is suitable only for a heavily traveled thoroughfare and is not adapted to the more localized traffic which, on Wightman Street, is far from great. Here we have extravagant expenditure for the initial construction of the wide expanse of paved roadway, as well as for its periodical



MCPHERSON BOULEVARD, PITTSBURGH, IS AN EXAMPLE OF GOOD STREET DESIGN

repair and maintenance. The paved expanse in summer is hot and dusty, thereby affecting the adjoining residences unhealthfully and unpleasantly. Space which might be used for the planting of grass, trees, shrubs and flowers is given over to paving which is not needed.

McPherson Boulevard, on the other hand, has a street design admirably adapted to its purpose. Each of the two roadways is adequate for the small amount of traffic which moves in either direction upon this residence street. The separating, "parked" strip therefore simplifies this light vehicular movement. Cross-overs, or spaces to turn about, are provided by breaking through the parked strip at street intersections and, in the case of long blocks, midway of the block. The demands of utility are therefore met in a most reasonable way. Moreover, the parked strip offers opportunity for planting which may vary from a simple lawn to a

fuller planting such as is here shown. This depends for its artistic success upon the civic spirit of the community, the funds available, and the abilities of the landscape designer. One can readily imagine a more luxuriant and beautiful planting than that shown in the picture, but it should not be forgotten that an even simpler scheme of planting may be quite beautiful if arranged by a capable designer.

Finally, one may well remember that it is often desirable to design a street in such a way as to discourage its use by "through" traffic, or even by any great quantity of local traffic. McPherson Boulevard, which is really a boulevard in name only and is not a long street, is a good example of such design. No better guiding principle could be found than that of designing each street for its particular use and not, mistakenly, for a multitude of uses that conflict with each other.

The Municipal Bond Situation

By Sanders Shanks, Jr.

Editor of *The Bond Buyer*

STATES, counties, cities and other political subdivisions have passed through an unusual period since the signing of the Armistice, from the standpoint of finance. Confronted with tremendous improvement programs, public officials found it necessary early in 1919 and in succeeding years to negotiate loans in an amount hitherto unheard of in municipal finance.

In 1919, 1920, 1921 and 1922, permanent state and municipal loans floated amounted to \$4,000,000,000. In the preceding four-year period, 1915-1918, the total was only part 1,700,000,000!

It would be but natural to assume that this great expansion in the supply of new bonds would have increased the difficulties of marketing the individual issues of securities and result in seriously depressing their market value. But, on the contrary, the record of the period shows that in the face of the huge borrowings of 1921 and 1922 (total for these two years was \$2,500,000,000) market values advanced steadily and are to-day on a level just under the pre-war values of 1917.

The perpendicular advance of bond

values which took place between July, 1921, and the fall of last year was general. All interesting-bearing securities participated in this upward movement, but state and municipal bonds have gone further than have other classes of securities and in recent months have withstood the pressure of economic factors before which bond prices generally have not been able to stand up.

The answer to the unusual strength of municipal bonds is their exemption from the Federal Income Tax. Under the present schedule, investors enjoying incomes of but moderate proportions are virtually compelled to invest in tax-free securities. Such buyers appear to have inexhaustible resources with which to absorb all the securities which the thousands of municipalities care to offer them. Just at this particular time an added incentive to purchase state and city bonds is furnished by the expiration on June 30 next of temporary exemptions on Liberty bond holdings. Many investors who have held Liberty bonds tax-free up to now are arranging to substitute therefor securities which will continue to bring in wholly exempt income.

There is every indication that the current year will be another period of borrowing activity. Almost all the state legislatures are in session or will be some time during the year, which means that an unusual number of bond issues will be authorized. In addition to city and county loans, a considerable amount of state borrowing for road building and to pay bonuses to ex-soldiers must be arranged for.

It is possible that before the year is out, bond market conditions will not be so favorable as they are to-day. The general tendency for interest rates to rise will eventually overcome special factors favoring municipals, such as tax-exemption. If

bond prices continue to decline, "municipals" will eventually follow. Consideration must also be given to the fact that the flow of tax-free bonds into the investment markets is being increased by the rapid creation of a huge mass of exempt Federal farm loan bonds and, under a new Federal act, there is now to be added a new class of shorter-term rural credit bonds, the total authorized issue of which at this time is no less than \$600,000,000.

There is present in the situation the danger of the tax-free bond market's finally being oversupplied, with perhaps a resultant serious break in selling values. This is possible, but not very probable.

With Proper Forethought in Good Times There Need Be No Bad Times

IN the expansion of public works when business depression is imminent, lies the natural and fundamental remedy for unemployment.

To secure nation-wide recognition for this idea during the present period of business prosperity is the object of the National Unemployment League, organized in January last with temporary offices at 190 Montague Street, Brooklyn, New York. George Foster Peabody is Honorary President; Darwin J. Meserole, President; Alfred J. Boulton, S. Parkes Cadman, Harry Emerson Fosdick, John A. Ryan and Mary K. Simkhovitch, Vice-Presidents, and Louis H. Pink, Secretary-Treasurer.

By the educational process of securing and publishing the facts concerning industry as they relate to unemployment, the League hopes to have accepted as a general principle and an absolute right by the people as a whole—and therefore by their representatives in the legislative bodies of the states and nation—that all workers are entitled to employment and that the fear of unemployment, with its accompanying poverty and distress, shall be abolished.

Just prior to the adjournment of the last session of Congress an identic bill, prepared by the League and introduced in the Senate and House on February 3, 1923, was reported favorably by committees of both houses, but failed of passage in the closing days of Congress. This bill provided for the creation of a Commission on Unemployment to make investigations to determine

where the public interest can best be served by the development of roads, afforestation and drainage and irrigation of waste lands, and to secure the cooperation of state and municipal officials in planning for public works to be undertaken when the next business depression occurs. The League hopes to create sufficient sentiment for such a measure to secure its passage at the next session of Congress. In a statement entitled "The Problem of Unemployment and a Remedy," the League says:

"As private industry slows down, and ordinary production is curtailed, what argument can there be against turning the displaced labor into the channels of public improvements, creating a network of roads throughout the country; projects of afforestation, and drainage and irrigation of waste lands; national electrification for light, heat and power; and the development of water power?

"When it is understood that for every man employed upon such public work as road construction, three others—men and women—are required in the regular industries of the country in making, preparing and transporting the materials for such project, it can readily be seen that it is not a problem of employing *all* the unemployed on public works, but that the employment of one-third, or, possibly even one-fifth of the idle on such work would so revive the industrial life of the whole nation as to eliminate all involuntary unemployment.

"The method of setting in operation such public works is, of course, the usual governmental means of legislation through the exercise of the police power, right of eminent domain, and taxation. Neither bonded indebtedness—for short terms—nor taxation for such sorely needed public improvements would be felt by a people given the assurance of permanent employment."

Municipal Electric Plant Shows Big Profits

South Norwalk Electric Works Show Profit of \$32,000 for Fiscal Year

THE South Norwalk, Conn., Electric Works represent as a property an investment of \$337,718.43, from which \$87,718.43 has been deducted for obsolescence and other shrinkage, leaving a plant value of \$250,000. This sum is considered merely as an estimated standard for the net value of its physical assets and is not intended by any means as a total valuation. To determine the plant's full value would involve the addition of a considerable sum to cover the worth of its rights and earning ability as a profitable and going concern, but whatever the plant's true value, it is all surplus, as every dollar of its investment was liquidated many years ago entirely by earnings from the service that it sold at low rates without aid whatsoever from taxes. All its subsequent investments have not only been paid for in the same manner, but have also contributed many thousands of dollars for the public good. There is now a reserve fund of \$30,376.92 that is being accumulated to help the cost of betterment of the plant.

While the income for the last fiscal year, August, 1921, to July, 1922, was \$141,204.49, the largest ever attained by the plant, and exceeded the previous year's income of \$131,432.57, the operating expense for the last year is \$2,817.88 less than that of \$111,697.71 for the previous year, which was the most expensive year as regards operation. The gross profits for this last year also are the largest which have been received, with a margin of \$5,047.55 over the former largest profit of \$27,277.11 for 1913. This is particularly gratifying when it is realized that the rates were reduced last autumn. In the main the income and profit increases may be largely attributed

to the extraordinary growth in the use of electricity and power in lighting and other industrial and domestic purposes, which continues at an unexpected rate. This domestic use is indicated by the increase of nearly 27 per cent in the output of 2,100,312 kilowatt hours for the fiscal year of 1921 to 2,546,827 kilowatt hours in the last fiscal year. There have been some reductions in the operation costs, but they are still very high as compared to those of pre-war times, and present conditions offer no reliable prospect of any immediate relief.

At the South Norwalk Electric Works the Golden Rule has been the basis of all relations with employees, patrons and others with whom the plant has dealt, and no court has ever heard an appeal for justice between them and the plant. The plant management and the employees are appreciative of the record and are striving in every way to maintain it without a break.

Capacity Increase of Plant

Considerable capacity increase and improvement to the plant was authorized in 1920, but further work on an extensive scale was deferred after the first section was completed early in

1921. This course was taken because the unfavorable conditions, uncertainties and high costs of equipment and construction made it advisable not to proceed faster than the immediate future required, but as the constantly growing demand on the plant has increased within the last few months to unexpected proportions and is showing no diminution, and as the older parts of the equipment can no longer be depended upon except as an unsuitable and insufficient auxiliary to the new plant, plans are being laid to prepare for a resumption of work upon such a scale and at such a pace as to keep up with the needs of the plant. This work will not be completed, however, until about 1925.

30 Years Without a Fatal Accident

This plant has had its share of accidents, but fortunately none has ever reached the magnitude of a calamity, and its service has

been fully as reliable, especially in times of extreme emergency, as the average similar plant throughout the country. During its 30 years of operation, it has never been the cause of a death or a serious injury to any one. It established its own form of

compensation long before the law for such purpose was created, and it has always allowed its regular employees full pay when too ill for work; if they are injured in service, medical or hospital charges are paid by the plant in addition to full wages.

Oxyacetylene Torches for Melting Joints in Water-Mains

By J. C. Michie

Superintendent of Water-Works, Durham, N. C.

THERE have been a few times in water-works practise when I have used the oxyacetylene torch for cutting metal, but I will confine my discussion to its use in melting out lead joints in cast iron pipe. The rapid growth of our city has required the removal of 6-inch pipe lines to be replaced by larger mains, to reinforce the distribution system. In the last three years about 4 miles of 4-inch pipe also have been taken up.

To melt the joints, we tried the old scheme of building wood fires at the joints. This is slow and expensive and often heats the pipe to a higher temperature than 612 degrees Fahrenheit, the melting temperature of lead, as it is impossible to control wood fire heat. This destroys the coating on the pipe and injures its usefulness for future use in the distribution system.

We experimented with a kerosene torch with practically the same results, and then I began looking for a more practical and less harmful method of melting the joints. Being unable to secure any definite information with regard to the use of the oxyacetylene torch for this work, I bought an outfit and began experimenting. We are using the Oxweld type of cutting and welding apparatus and have found that the No. 6 tip, which is a fraction of an inch larger than the cutting tip, gives the best results in melting out joints.

Methods Developed for Melting Joints

First, the correct flame is secured by manipulating the valve on the blowpipe. After the water has been drained out of the line and the surface of the lead joint thoroughly cleaned, the flame is applied to

the joint at the top of the pipe. When the lead begins to flow, follow it down the sides of the pipe, keeping the flowing surface at an angle of about 30 degrees with the bore of the pipe, which allows the lead to run off freely as soon as it becomes molten. The same operation is repeated on the opposite side of the joint. It is found that all of the lead runs off freely, except a small quantity in the bottom of the bell, which has to be burned or oxidized and passes off in a vapor, leaving a white deposit of oxide of lead on the pipe. The average time required to melt a 6-inch pipe is about ten minutes when the flame is properly regulated.

This method of melting out lead joints will not injure the coating of the pipe, except on the spigot end of the pipe for a distance equal to the depth of the lead in the joint. It is impossible to hold one's hand on the bell of the pipe without discomfort during the melting. The use of oxyacetylene is particularly useful and rapid in taking a valve off a pipe, as it can be done without the slightest injury to the valves or the seat. It saves the old practise of cutting off a 6-inch nipple and smashing it out of a valve hub with a sledge hammer.

It is most important to secure a correct flame, and it takes some practise and experience. The neutral or correct flame for melting lead is a clear, sharp, white cone about $\frac{3}{8}$ -inch or $\frac{1}{2}$ -inch long, measuring from the end of the tip. The best method of training raw labor is to select a fairly intelligent calker or preferably an all-round pipe man, explain the principles, give him the torch, and enforce practise on melting out joints at the scrap pile. The man will

soon become interested, and will surprise the superintendent with the result.

Use and Abuse of Oxyacetylene Equipment

Oxygen cylinder valves should be opened slightly to blow out any dust or grit in the nipple before attaching the regulator. Turn on the oxygen slowly to prevent injury to the regulator, as the cylinder carries about 1,800 pounds pressure to the square inch. The cylinder should be handled carefully and not dropped from a truck onto a hard pavement, because although it looks strong, the cylinder valve might be injured or the blow might cause a serious explosion.

The acetylene cylinder valve should never be opened in a building, as acetylene is inflammable and when mixed with air in the proper proportions forms a high ex-

plosive. Keep oil away from the oxygen cylinder valves, as the presence of oil may ruin the regulator. If any lubricant, either on the oxygen valve or the acetylene valve, is needed, use soap.

Too much care cannot be taken with the regulators. They should be kept in perfect condition, so that they are active and dependable. Follow the instructions and never do any guessing in handling these two gases. Suitable hand trucks should be provided for the cylinders, as they make for convenience and economy in the work. Always keep the cylinders in a vertical position. Take pride in your equipment, keep it clean and in good shape, and it will reward you with good service.

ACKNOWLEDGMENT.—From a paper read before the North Carolina Section of the American Water Works Association, November, 1922.

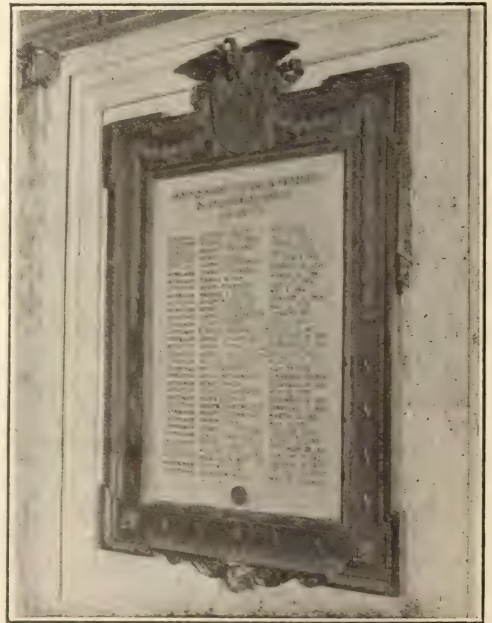
Hero Tablets at Police Headquarters

ON either side of the main stairway of Police Headquarters in New York City is a tablet dedicated to the memory of policemen who died in the performance of duty. As far back as 1908 the Committee on Permanent Work of the Municipal Art Society recommended that such a memorial be given to the new building of the Police Department, and in the same year the directors of the Society voted a definite appropriation for this purpose, and a committee was appointed to cooperate with the architects of the building in making a suitable design for the tablets.

These memorials are of marble on which are inscribed in bronze letters the names of the heroic dead, each tablet set in an ornamental frame of bronze with elaborately sculptured details and appropriate symbols, and at the top of each panel is the inscription, "Names of those who died in performance of duty." The tablets were completed by October, 1910, and were unveiled at Police Headquarters on May 11, 1912, before a large audience.

The first group of names was selected by a committee of citizens who went back to 1854 for their first police hero. Afterward the names of succeeding heroes were submitted to the Municipal Art Society by the Police Department from time to time, and the Society bore the expense of transcrib-

ing the names in bronze on the tablets. The cost of inscribing the 67 names was \$835, and the cost of the tablets was \$2,075, making the total amount \$2,910. The addition of the most recent names, in January, 1923, completes the gift.



HERO TABLET, POLICE HEADQUARTERS, NEW YORK

Thumb-Nail Sketches of the Four Principal Types of City Government

By H. W. Dodds

Secretary, National Municipal League

THERE are four principal types of city government in the United States.

Each type is here described in a few words, with a brief digest of the leading arguments employed by the friends and enemies of each plan:

1. The Decentralized Plan

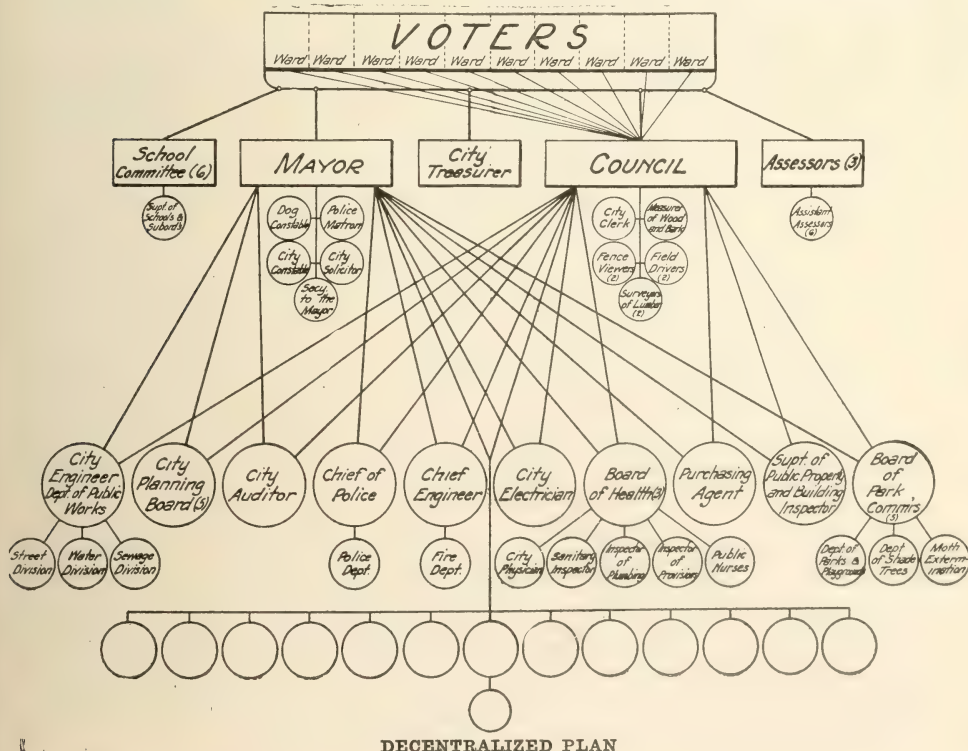
Description.—The mayor is elected on a partisan ticket by popular vote, along with numerous other officers, such as auditor, treasurer, assessors, city engineer, etc. The council is large and is elected by wards on a partisan ticket. Those administrative officials not elected are appointed by the mayor with the consent of the council. There are usually a number of administrative boards with overlapping terms (often longer than the term of the mayor); for example, a water board, a park board, a board of health, etc.

Ordinances (local laws) are passed by the council and may be vetoed by the mayor.

The rank and file of city employees may or may not be under civil service.

Arguments Pro.—The large council elected by wards assures that every section of the city will be represented. Partisan elections preserve intact in the city our national political parties. The mayor, being compelled to share the appointing power with the council, is prevented from becoming an autocrat. The election of other administrative officials besides the mayor and the appointment of boards rather than single administrative heads for some departments prevent centralization of authority in a single person, which is undesirable and dangerous.

Arguments Contra.—Experience has shown that a small council not elected by wards secures a higher type of official than the ward system, which gives nothing better than the ward politician. Since ward lines are, gener-



ally speaking, purely arbitrary divisions of a city, there is no real need for ward representation. Election by wards starts log-rolling between wards for special favors. The election of a large number of officials makes a long ballot, which means that the voter cannot know the quality of all those named on the ballot and so votes the whole ticket as the boss has planned it. The boss and not the voter, therefore, decides who will be elected.

The fact that the mayor is compelled to share the appointing power with the council, together with the fact that some administrative officials are elected, scatters and diffuses administrative responsibility. This is wasteful and inefficient because there is no centralized power of control and supervision to coordinate various activities.

The mayor, being elected and often anxious for reelection, has political debts to pay.

The mayor and elected officials are usually politicians and amateurs in the highly technical business of the city.

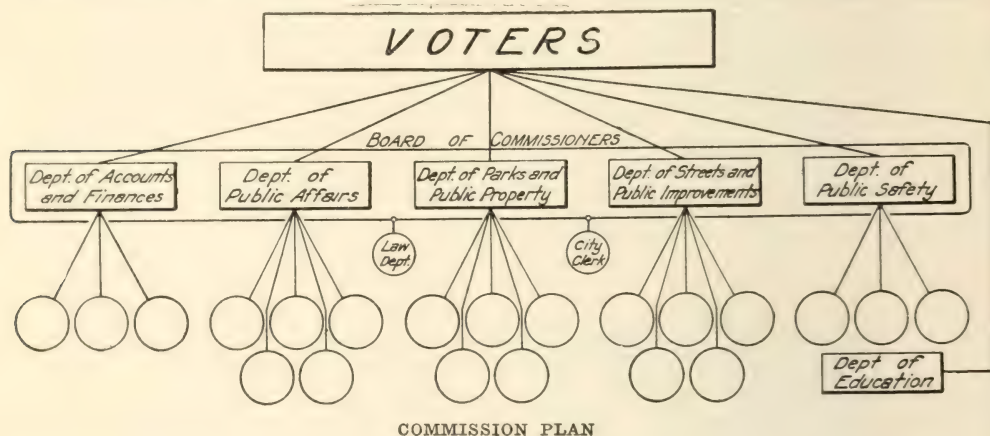
The partisan ticket causes the voters to

organize as a board. The work of the city is organized into five departments, with one commissioner at the head of each department.

The rank and file of city employees may or may not be under civil service.

Arguments Pro.—All the affairs of the city are centralized in the hands of a single commission which can be easily watched by the voters. Election at large secures a high type of man. Election of only five makes it possible for the people to know all about all the candidates. A small group can transact business with more facility than a large council. The commission is responsible for both the tax rate and the service.

Arguments Contra.—Commission government is five-headed administration. Administrative policy therefore is a series of compromises. The head of a department finds himself constantly overruled by the vote of other members. One of two results follows: either friction develops among the members, resulting in stalemate; or each commissioner is permitted to go his own way without considera-



divide along national party lines rather than on local issues, which should properly be the issues of a municipal election.

The city government, not being organized along lines of clear-cut responsibility which the people can enforce, falls into the hands of the political boss, who pulls the wires of the extremely complicated organization, which the average citizen cannot understand.

A simple government is the most democratic because it is the easiest for the people to control. A complex government baffles all but the experts.

2. The Commission Plan

Description.—The people elect a commission of five persons who are responsible both for legislation and for the administration of the city. They are elected at large on a non-partisan ticket. One of the commissioners is named mayor, usually by his colleagues, but his powers are ceremonial only.

The five commissioners sitting together pass ordinances and determine administrative poli-

ties of other departments or the city as a whole. The city gets five little governments.

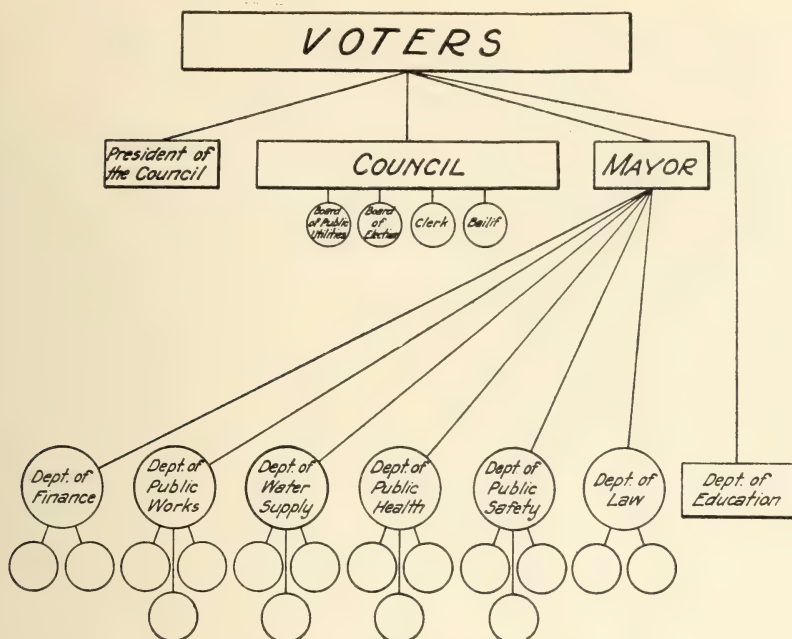
The commissioners, being elected on political platforms as legislators, are rarely good executives and scarcely ever experienced in the administration of municipal activities.

Many popular and trustworthy persons who would make good members of a legislative body are not by nature or equipment fitted to be executive heads of a city department.

The appropriating power and spending power are in the same hands, which encourages extravagances.

3. The Centralized Mayor-Council Plan

Description.—The mayor is elected by the people, sometimes on a partisan but usually on a non-partisan ballot, no other administrative officials being elected except perhaps the auditor or comptroller. The council is small in number, elected either by wards or at large. Confirmation by the council in administrative appointments is not required. The mayor has the veto power.



CENTRALIZED MAYOR-COUNCIL PLAN

Administrative services are organized into five or more departments, each headed by a director appointed by, and responsible to, the mayor.

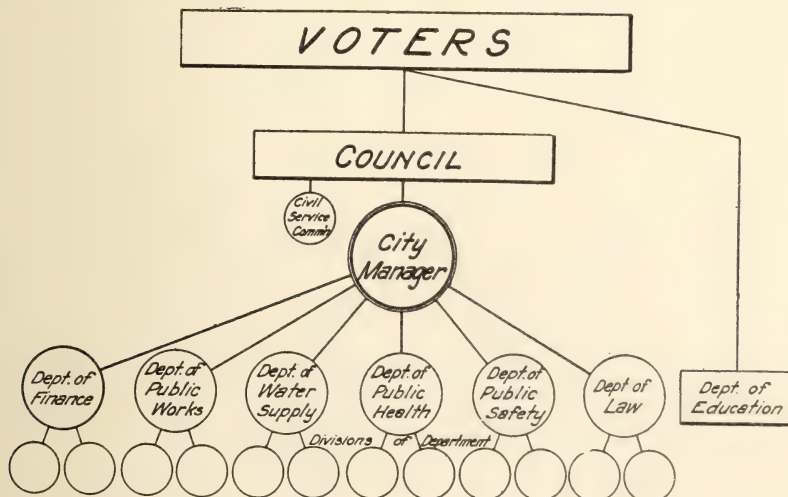
The rank and file of city employees are usually under civil service.

Arguments Pro.—The chief executive is elected by the people directly. He is given full control over administration. The people look to him as the leader whom they can hold responsible for poor work in any department. There is separation between the administrative and legislative departments. Because of the short ballot the people are able to know well

the candidates for council for whom they vote. The mayor cannot "pass the buck," because he has been given power sufficient to perform his promises.

Arguments Contra.—The mayor is usually a politician elected because of personal popularity or because he stands for certain general policies or plans of public improvements. He is rarely a good administrator of the details of city business, which deserve the full-time attention of a high-caliber executive, whereas the average mayor has to spend much of his time in taking care of his political interests.

The mayor (and this is truer of the so-called



CITY MANAGER PLAN

independent mayor than the one who is more of a politician) comes to his work without preparation or experience in the highly specialized work of the city. He is an amateur at the head of a big business. As soon as he learns the ropes, his term expires and a new "greenhorn" is elected.

An elected mayor has to be guided by political considerations. Even the best of them have incurred campaign obligations which must be met by patronage.

The same is true of department heads who change with the mayor. The administration therefore cannot be free of politics.

4. The City Manager Plan

Description.—A small council elected by popular vote on a non-partisan ticket with functions confined to legislation. The council appoints the city manager and supervises him, instead of being active departmental executives, as under the commission form. The city manager can be removed at any time by the council. He is a full-time executive head, chosen upon the basis of experience and ability, and not because of political considerations. The work of the city is organized in departments, the heads of which are chosen by the manager. The organization is similar to that followed by successful business corporations and other associations.

Arguments Pro.—The manager is appointed, not elected. High-grade administrative ability is not secured by election. The public are competent to pass on personalities and policies, but do not have the time to study individual fitness for an administrative post. This is best

done by a small group who are intimately familiar with the job requirements and can study carefully the merits of each applicant.

City managership is now a profession, and each manager's success and his hope for promotion to a higher salary or a larger city depend upon his results, and not upon political favors or political service.

Most city problems relate to administration of city services, and a premium is put on efficiency, since the manager can be discharged at any time. This keeps him democratic and responsible to the council, who are in turn chosen by the people.

The manager is not an amateur. Many have been serving for years. Many have been called to better jobs as managers in larger cities on account of their reputation for service.

All city activities are coordinated to the best advantage under a central supervisor. There is no division of function or responsibility.

A small council being the only elected officials, the people can concentrate attention upon a few candidates and their fitness to frame policy, without being confused by administrative considerations as well.

Arguments Contra.—The plan is not democratic, because the manager is not elected directly by the people. He may be an out-of-town man and out of touch with local sentiment. The manager has too much authority and will "put things over" on the council, or the council will interfere too much and hamper the manager. The manager cannot engage in politics, as can the mayor, and the city is therefore without any outstanding political leadership such as a mayor gives.

Cincinnati Curtails a Needed Service

A Recent Editorial From the *Electrical World*

FINDING itself short of funds, Cincinnati has decided to curtail some of its public lighting—not that the streets of Cincinnati are the best lighted in the world or that the city is exceptionally free from crime, but because its Director of Public Service is lacking in discernment and does not appreciate just what benefits proper street lighting bestows on a community. When electricity was first used for street lighting its fitness for the purpose was instantly recognized. Among those most outspoken in their praises were directors of public safety and police commissioners, who saw in the new light a deterrent to crime. So great was appreciation that it became quite common to say, "An arc lamp is equal to a policeman."

Considering the wide difference between

the cost of the lamp and the cost of the policeman, the constant service of the one compared with the other, and the fact that street lighting is the only public service which benefits every man, woman and child in the community, the wonder is that appropriations for street lighting are not twice as large as they are. Certainly no city is overlighted; none, in fact, is even adequately lighted, and for a city of the size and importance of Cincinnati deliberately to weaken its safety and protective measures is shortsighted and blameworthy. It indicates a lack of enterprise which one would not expect in the stanch old city, whose name recalls both Revolutionary and Roman history, and which was a flourishing town when Cleveland was a hamlet and Chicago still unborn.

The Collection and Disposal of Municipal Waste

Abstracts From a Preliminary Study of Conditions in Portland, Ore., Made by a Committee of the City Club of Portland

THE problem of garbage disposal in Portland, Ore., is immediately pressing. The present incineration unit is insufficient to care for the average daily receipts during the summer months. As a result, the city is forced to dispose of a large amount of mixed waste by dumping in a manner so unsightly and unsanitary that any private concern doing the same thing would be liable to prosecution for maintaining a nuisance. The Committee points out that the undesirable conditions which they criticise are the results of the rapid increase in the amount of refuse to be handled, together with the continuance of an outgrown method of collection, and that the criticisms do not reflect upon the city authorities.

Collection in Portland

The method of collection of municipal waste at present employed in Portland is a form of the scavenger system which may be described as collection by licensed individual contractors. Under this system, licenses are granted upon the recommendation of the superintendent of the garbage disposal plant. Applications for new licenses must be signed by three citizens. The procedure is purely formal and affords no actual control of the number of collectors operating, their character, equipment, routes, charges, etc. The superintendent states that while he might refuse to approve an application, he has never done so. The fee for such license is \$5, covering three months for one vehicle of any description.

At present there are 82 licensed collectors

delivering waste to the incinerator, and a number of so-called hog feeders who collect garbage from hotels and restaurants only. Once granted a license, the scavenger becomes a free lance who may operate in any part of the city and may charge such rates as the traffic will bear. Since there is no control of routing, there is much overlapping in the more thickly populated parts of the city and no collection at all in other sections. Lack of any information as to routes makes it impossible to estimate with

accuracy the extent of such duplications. In some cases it is known from casual observation that as many as three, four, or even five collectors operate over the same grounds.

The usual charges by the collectors are from 50 cents to \$1 per month for weekly collections. Although it would appear that the unlimited number of licenses would tend

What Are the Conditions in Your City?

The garbage collection and disposal conditions in Portland, Ore., as outlined by a Committee of the City Club of Portland in this article, are regretably not confined to that one city. There are many other cities in the United States where a lack of foresight and proper planning has resulted in the overloading of present disposal plants. Study your collection and disposal problem now and be prepared for improvements and expansions before the problem becomes too serious.

to make this highly competitive and hence tend to regulate prices, this is offset by the existence of a strong union, including about 50 per cent of the collectors. The equipment of collectors is nearly all motorized and includes trucks of all sorts and sizes. The value of such equipment is undoubtedly above \$200,000. This capital investment is larger than would be necessary if it were not for the extensive overlapping of routes. The sale of equipment and routes is a well-recognized business. The average price varies from \$3,000 to \$3,500, or even \$4,000, depending upon the value of the equipment and the number of patrons on the route.

No information is available as to the aggregate cost to householders under this system of collection. No reports are made

to the city, and such information as the superintendent possesses is obtained by indirect questioning and piecing together casual remarks. Perhaps the best indication of the income from any route is in the selling price of the route. It appears that this price is about ten times the normal collection from patrons. Thus, a route which sells for \$3,500 may be estimated to afford a monthly income of \$350.

The Present Method of Garbage Disposal in Portland

A combination of hog feeding, dumping and incineration is the present method by which Portland disposes of its municipal waste. Special licensed collectors contract with the larger hotels and restaurants for the removal of such portions of table and kitchen refuse as are of value for hog feed, and haul the garbage thus obtained outside the city to feeding ranches which are wholly beyond the control of the sanitary forces of the city. Collectors pay the hotels for their garbage when the price of pork is high, as it has been for some years past. Because of this source of revenue, hotel managers have formed in the past one of the strongest centers of opposition to proposals for municipal collection. It is worthy of note that in Seattle it is held that all such refuse is the property of the city, and it is collected and sold to hog feeders under the control of the city.

The principal dump in use by the city for the disposal of refuse is near the incinerator, where a good-sized lake is being filled. About 20 acres are in use or are available, of which 5 acres are owned by the city. The dump is unfenced and is at times a hunting ground for scavengers and small boys. At the present time much rubbish and a considerable quantity of garbage are being dumped because of a lack of incinerator capacity. This creates an obnoxious condition.

Inflammable rubbish is burned in the open, and as it is often mixed with garbage, offensive odors are created. The decaying garbage is not covered and the water of the lake into which the base of the dump extends is exceedingly foul. The whole place swarms with flies in the summer and is alive with cockroaches. It should be understood that these are conditions arising from the insufficient capacity of the incinerator and that the city authorities are

responsible only in so far as they may have failed to exercise the proper amount of foresight and efficiency in providing for the increase in the quantity of refuse to be treated. In condemning most strongly the conditions existing at this dump, the Committee does not intend to express or imply any criticism of the city authorities or of the plant superintendent, but emphasizes the pressing nature of the garbage disposal problem now existing.

Somewhat similar conditions exist in other dumps within the city, and in one dump located near a thickly populated section of the city, the unsanitary and unpleasant conditions have aroused the neighborhood.

The Incinerating Plant

The municipally owned incinerator for the city of Portland is located on the west side of the city, in North Portland. It is a two-story brick building 80 by 90 feet in dimensions, and was constructed in 1910 at a cost of \$99,900. Combustible material, including all garbage except that collected by the hog feeders, is hauled by the licensed scavengers to the incinerator. Although the daily capacity of the incinerator is only 150 tons, in August, 1922, 170 tons of material per day were received. Of this 170 tons, the superintendent estimated that 120 tons were wet garbage, half of which, if properly segregated, could be used for hog feed.

The amount of waste to be incinerated is rapidly increasing on account of the increased population and of the increased collection area, which follows hard-surfaced roads. It is estimated that the paving program now being carried out in the southeastern part of the city will increase the quantity of waste hauled to the incinerator by from 5 to 10 tons daily. The city engineer's office has already asked for bids for the construction of a new incinerator to give a total capacity of not less than 200 tons daily.

The present incineration plant itself, although of an early type, is efficient when viewed merely as a disposal plant, and its operation is sanitary and without objectionable features. Refuse is delivered to the second floor by the trucks, which enter by an inclined driveway. The refuse is discharged directly into the furnaces, which are of the Fred P. Smith type, constructed

in two banks of four units each. The refuse falls directly upon the grate, and the combustible material present is sufficient to burn the garbage without additional fuel. Tin cans present in the waste are useful, since they prevent too close packing of the charge. After discharging their loads, the trucks are washed with cold water. Hot water was formerly used, but was abandoned because of the danger to workmen.

The residue left after burning, composed mostly of oxidized tin cans, is spread on the dumps. The quantity of ashes being hauled to the city dump, outside that derived from the incinerator, is large, and increasing rapidly. On the ash dump it is now necessary to employ two or three men continually where five years ago one man on part time was sufficient. This is partly due to the increased amount of collection and to the increased use of coal for heating. When not collected by licensed scavengers, ashes, bottles, cans, etc., are likely to be dumped on vacant lots and along the highways. This is one of the worst features

of the lack of city-wide collection. It is worth noting that the scavengers' union assists materially in the prevention of promiscuous dumping.

The grounds to the west and south of the incinerator plant, formerly a part of the original dump, have been developed into a small park or garden which would be a credit to any neighborhood and shows the possibility of developing filled-in land.

The type of furnace in this incinerator is not adapted for the generation of steam, hence there are no by-products. The problem at present before the city concerns the best methods by which an increase in incinerator capacity could be provided.

The additional capacity required may be obtained by:

1. Repairing and remodeling the present plant, with necessary additions.
2. Replacing the present furnaces with those of a more modern type having a capacity of at least 200 tons daily.
3. Constructing a new plant in some location which will reduce the expense of hauling waste.

Repaving with Granulated Slag and Brick

By Charles F. Sperling

Borough Engineer, Wilkesburg, Pa.

THE streets of Wilkesburg, Pa., were originally paved with 4-inch brick on an 8-inch gravel base with a 1-inch sand cushion and sand filler. Most of these have settled about 3 inches, so, in repaving, we take up the old surface, scrape up the loose sand and gravel, and then thoroughly roll the subbase. Granulated slag obtained from the Carnegie Steel Company at a cost of \$2.50 per car-load plus freight charge is then spread over the base. The granulated slag sand is thoroughly wet down and rolled with a 5-ton tandem roller. It is then brought to the required grade with about 1½ inches of granulated slag. Dunn re-pressed lug

block brick are then laid, over which we place asphalt according to the specifications of the National Paving Brick Manufacturers Association. About 2 gallons of asphalt per square yard are required to cover the entire surface, after which a layer of river sand is spread over the asphalt and rolled. The street is then ready for the regular city traffic without any delay.

The granulated slag sets as hard and seems as durable as concrete after about six months. The Lincoln Highway, where it passes through the borough, has been repaved by this method and has stood up very well.

PRESERVE THE DESIRABLE TREES AND SHRUBS

A few years ago there was a tendency to cut all trees and young shrubs from the roadside, and this tendency is still noticeable in some localities. Those same roadsides, made barren through wholesale clearing, are now being considered for planting. How much more reasonable it is to cut only the undesirable growth and to preserve the desirable trees, shrubs and vines, thereby saving expense, labor and years of waiting, besides producing roadsides more attractive than those planted by man.

—Charles F. Boehler, Landscape Engineer, Michigan State Highway Department.

Savings Effected Through Improving Road Surfaces

What Does It Cost to Haul Over the Road?

IOWA STATE COLLEGE and other colleges and institutions have been making a test to determine the comparative tractive resistance of various types of road surfacing. Special instruments are designed to carefully and accurately test the pull required and the fuel consumed per ton-mile, the accepted unit of highway traffic. Tractive resistance test figures indicate that the average mileage per gallon per ton-mile is as follows:

On earth road.....	14 ton-miles
On gravel road.....	21 ton-miles
On concrete road.....	31 ton-miles

At 24 cents per gallon, fuel costs per ton-mile on these average as follows:

On earth road.....	1.71 cents
On gravel road.....	1.15 cents
On concrete road.....	0.77 cents

The good roads department of Iowa State College working with the State Highway Commission in 1917-1918 established weighing stations on important roads together with a careful count of numbers and types of vehicles. Each vehicle was accurately weighed. The average weight for each general type of vehicle has been found as follows:

Horse-drawn passengers....	671 pounds
Horse-drawn freights.....	1,998 pounds
Passenger automobiles.....	2,691 pounds
Motor-driven freight.....	2,720 pounds

Applying these weights to various types of vehicles using a given road gives the daily average tonnage; then applying to this tonnage the cost of gasoline consumed per ton-mile on this particular type of surface, should give data from which to determine whether or not it is economical to pave any particular road.

Take as a specific example the Lincoln

Highway of Ames, Iowa, a gravel-surfaced road. The traffic census count shows a daily average of 904 vehicles. The daily average tonnage shows 1,232 tons. Test data show that the cost per ton-mile of fuel, on gravel, is 1.15 cents, and 0.77 cents for fuel on concrete road. If this road were paved, there would be a possible saving of 0.38 cents per ton-mile in fuel consumed. This saving applied to 1,232 tons of average daily traffic gives an average daily saving of \$4.78 per mile of road. The daily saving amounts to \$1,746 per mile per year.

The average cost of maintaining gravel roads in the primary road system in Story County, Iowa, in 1921 was \$803 per mile. The average cost of maintaining the concrete pavement was \$89 per mile. The saving in maintenance of concrete over gravel would therefore be \$714 per mile. Add to this the \$1,746 saved on fuel, and it would make an annual saving on concrete of \$2,460 per mile per year.

Concrete paving prices during 1922 have been averaging on contracts for 125 miles of 18-foot pavement approximately \$26,400 per mile. Interest per year on this amount at 5 per cent would amount to \$1,320 per mile for the first year, but paying for the road through a term of years the interest would be figured at one-half this amount, or \$660. Deduct the interest charge of \$660 from the \$2,460 saving on maintenance and fuel, and this leaves an average saving of \$1,800 per mile per year. Applying this figure on the cost of the road shows a saving that would pay for the road in 15 years.

Aid the Motor Truck to Become Increasingly Efficient

The service rendered by a motor truck can be no better than the roads over which it runs, nor the traffic conditions under which it operates. The cost of trucking depends on time, not distance. Very little has been done to speed up truck movements. Our highway systems are seldom properly laid out and never properly operated. Our city streets are worse. As a result, trucks are delayed. . . . It makes the cost of living higher for everyone. We must urge on the use of the motor truck and furnish it with facilities in the shape of roads and streets and sensible traffic regulations so it can best "do its bit."

—MAJOR ELIHU CHURCH.

Lighting an Avenue of Christmas Trees

New Highway Lighting Units Solve Unique Problem

WHEN the lights of the new street lighting equipment in Altadena, Calif., were turned on, the latter part of December, a very interesting installation began operation.

The lighting problem presented was unusual. Altadena is a suburb of Pasadena, situated at the base of the Sierra Madre mountains. The district comprises about 4 square miles and consists of country estates. The thoroughfares are in reality highways rather than streets in the ordinary sense of the latter term. Such being the case, the residents, while desiring the illumination of these thoroughfares, did not want ordinary street lighting units employed.

A trial installation of G-E Novalux highway lighting units was therefore made along Santa Rosa Road, famous throughout that section of California for the fact that the residents string thousands of little electric lamps among the branches of the cedar trees lining it, at Christmas time, thus converting the road into a veritable Christmas tree avenue. This road is somewhat more than a mile long and has an incline of about six degrees. The foliage of the trees is very dense and the branches almost touch as they arch over the roadway.

The lighting units were placed 28 feet above the road and 540 feet apart. Poles in front of the homes fronting the road were deemed objectionable, and heavy cables stretching across it were in disfavor. The adaptability of the unit chosen made it suitable to these conditions, and they were suspended in a center span arrangement from inconspicuous wires strung high overhead.

So successful was this installation that a lighting district was established covering about 4 square miles and containing a road



HIGHWAY LIGHTING ON "CHRISTMAS TREE AVENUE," KNOWN AS SANTA ROSA ROAD, ALTADENA, CALIF.

mileage of approximately 30 miles, most of which is to be thus illuminated, a total of 270 lighting units being used. The petition creating the lighting district was approved by the County Supervisors, and at a subsequent election the necessary bond issue to finance the improvement was voted.

Safety Through Street Illumination

Investigation has shown that over 17 per cent of night traffic accidents are attributable to a lack of adequate street illumination.

Operation of the High-Pressure Fire System in Baltimore

By P. W. Wilkinson

Secretary, Board of Fire Commissioners, Baltimore, Md.

ONE of the most necessary elements of success in putting out large fires is a large stream of water that can be thrown a considerable distance. The pressure in many cities is not sufficient to furnish this, but in Baltimore a high-pressure system has been put in operation which has been giving for several years complete and satisfactory proof that it can furnish the protection needed. This pressure service possesses certain features that are unique.

The pipe is all lap-welded soft open-hearth steel. This enabled the strength to be determined; and as all joints are universal, designed without gaskets, this takes care of stresses caused by temperature changes, settlement or other disturbing features, without the use of expansion joints. It also makes it possible for other underground pipes to be crossed or passed with greatest facility. The metal-to-metal connections eliminate electrolysis, thus reducing corrosion and leakage to a minimum.

The hydrants are simply designed, so that they are really only vertical pipe connections on the mains, having a valve at the lower end opening against the pressure, and the upper end fitted to receive the hydrant head, which is portable and carried on the fire department hose trucks.

The hydrant heads are novel in that they are attached to the hydrant by a very small turn and locked by the pressure of the flow into the head. The four side hose openings for 2½-inch outlets are each equipped with a special regulating valve by which any pressure from zero to a maximum of 250 pounds may be delivered entirely independently of any signaling to the high-pressure pumping station, and are under the absolute control of the chief in charge at the fire. On top of each head is also an opening for a 3-inch turret or Monitor nozzle. This type of portable head with connections to hydrant renders it possible to have streams flowing inside of 20 seconds after arrival at the plug.

The special head is also fitted for a Morse Jumbo nozzle, having tips ranging from 2½ to 4 inches with a discharge capacity of 7,000 gallons per minute. These can be used for the heaviest fire duty, and the direction of the stream can be fixed so as to remain constant without attention.

The High-Pressure Pumping Station

All equipment in the pumping station, as with every other part of the system, was designed for absolute reliability. As such a station works a very limited number of hours during a year, it is not necessary to consider economy at the expense of reliability and efficiency, either in the type of machinery or the operating methods. It was this consideration which decided the use of twin-cylinder, non-condensing engines and the type of pump with all packing outside and no valves to clog. There is also a small pump, used to maintain a constant pressure on the mains. On the discharge pipe from each pump there is a regulating valve which is connected to the steam main of each engine, and in this way the speed of the engine is absolutely controlled by the flow of the pump. This valve also automatically controls every other element of the station, such as blowers, water feed, delivery of fuel and operation of the stokers. This intimate and positive relation of all parts of the system and the maintenance of constant pressure on the mains permit the companies at the fire to operate to the best advantage without telephoning or otherwise signaling instructions to the station. This automatic engine control also permits streams to be drawn or stopped instantly if need be, with no resulting injury to the station equipment from water hammer. This really results in placing every detail of the entire system directly under the personal control of the officer in charge at the fire, insuring the highest efficiency with the greatest safety to the men.



3-INCH TURRET NOZZLE OPERATING FROM THE TOP OF A HIGH-PRESSURE
SERVICE HYDRANT, BALTIMORE, MD.

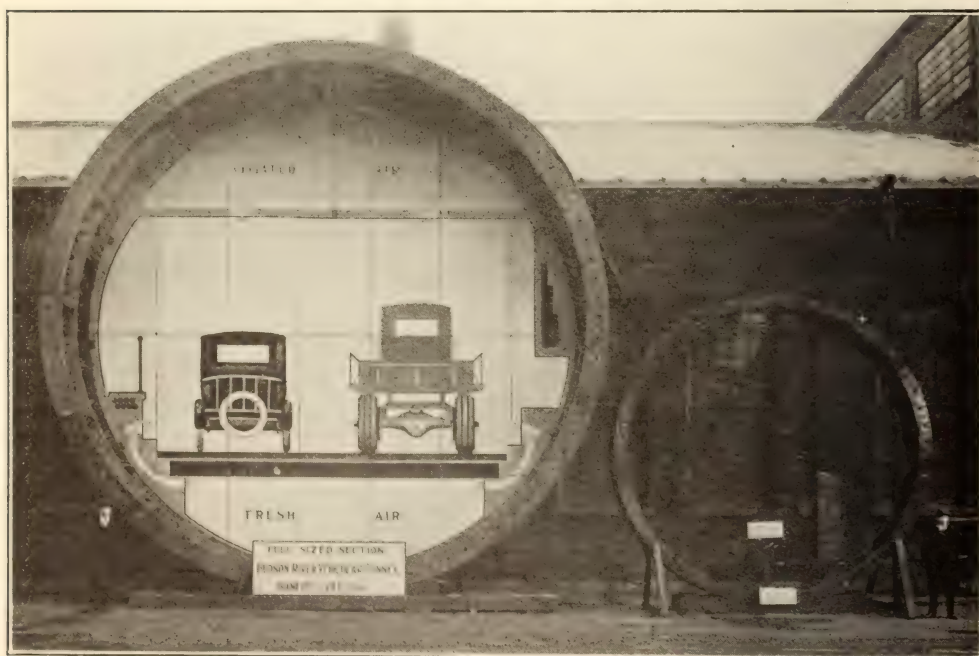
The system was installed under the direction of the late D. B. Banks, a consulting engineer of Baltimore. It has been in operation for ten years, during which time there has never been a single hitch

in any part of the equipment under any circumstances, nor has the ten years of use suggested any change or modification in a single feature. The cost of the construction and equipment was as follows:

Appropriation		\$935,777.41
Pipe line:		
Construction	\$529,848.87	
Paving streets	10,084.32	
Water Department connection.....	1,471.22	
Hydrant heads	5,775.00	
Tools	848.24	
Advertisements and blue-prints.....	164.95	
		\$548,192.60
Pumps	\$66,474.50	
Interest charges	1,848.50	
		68,323.00
Boilers	\$44,192.60	
Interest charges	760.77	
		44,953.37
Boilers and pumps:		
Piping		36,255.66
Pumping station:		
Ground	\$32,633.40	
Building	152,091.06	
Test holes	5,501.08	
Water Department connection.....	135.66	
Advertisements, specifications and blue-prints.....	401.78	
Miscellaneous	477.98	
		191,240.96
Engineering		42,020.82
Fire alarm service.....		4,791.00
		\$935,777.41

Comparative Tunnel Sections

An Example of the Advance in the Science of Tunnel Construction



A full-size section of the Hudson River Vehicular Tunnel, New York-New Jersey, 29 feet 6 inches in diameter, weighing 16,630 pounds per linear foot of ring, and a full-size section of the Hudson & Manhattan Railroad tunnels under the Hudson River, 16 feet 7 inches in diameter, cast in 1902, weighing 5,670 pounds per linear foot. These sections were set up by the Bethlehem Steel Company in its yard at the time of the visit of the American Society of Civil Engineers, January 18, 1923

plan prepared and to employ a first-class landscape architect to lay out the section with a view to conserving the natural beauty of the district.

WM. H. SCHUCHARDT,
President, Board of Public Land Commissioners.

Municipal Milk Stations

RAHWAY, N. J.—In the city of Rahway milk is now regarded as a public utility. Acting upon this theory, Mayor James B. Furber last summer appointed a milk commission to investigate what could be done by the municipality to reduce the high price of milk. After a careful study of the situation, the commission recommended the establishment of municipal milk stations. These are now in operation, to the number of eight. The price of grade A milk at the stations is 12 cents, whereas the price charged by private concerns is 18 cents and in some cases 19 cents. A large number of private concerns have been compelled to drop their prices in order to meet municipal competition.

In arriving at the municipal station idea, the Commission studied both cooperation and the possibility of persuading the private milk distributors to introduce more efficient methods of distribution. It was found, however, that the former method would require a long educational campaign and would therefore not meet the acute situation, while the latter method could only be brought about by forcing the dealers to such steps through competition.

The municipal stations were installed in private stores. This obviated the necessity of a large overhead, and also assured clean handling of the milk. The best stores in the city were chosen for this purpose and with a particular view to their location near the homes of the consumers. The consumers get the milk in bulk and on a cash-and-carry basis.

Contracts have been signed with three dealers covering a period of a year, and assure the city of an unlimited supply of milk. Over 1,800 quarts are sold each week at the municipal stations during these winter months. In the summer, of course, the demand will increase greatly. The producer has received a benefit from the municipal contract in that his price is standardized throughout the year. The city pays the same price per quart to the farmer winter and summer. Its price to the consumer likewise remains unchanged.

All classes of the community have joined in patronizing the municipal stations. All agree, also, that the stations have been carried on efficiently and have been a decided success. The Commission from the beginning made it plain, in its reports, that the success of the project depended not upon itself, but upon the cooperation of the people. The members of the Commission are two women and two men. Mayor Furber—who has also initiated a number of other municipal projects, such as municipal sale of potatoes, coal, etc.—is a Socialist. Of the numerous reforms introduced by him during his ten months of office, the municipal milk stations have attracted the most attention. With the signing of the contracts with the producers in December, these stations were put on a permanent basis.

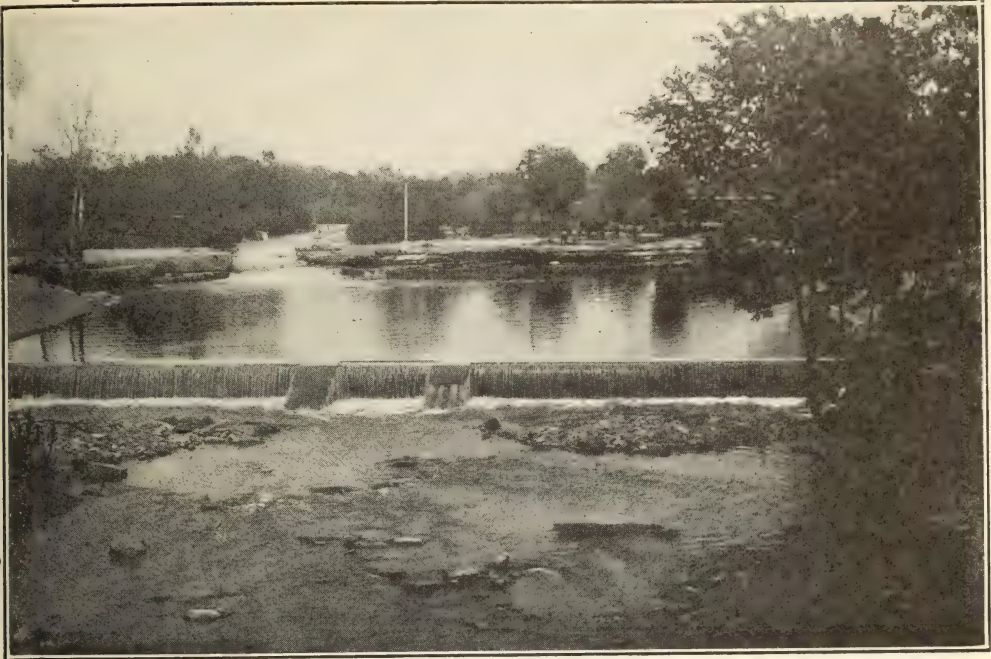
LOUIS F. BUDENZ,
Secretary, Rahway Milk Commission.

An Unusual Small-Town Swimming Pool

PENDLETON, IND.—It is said that the early citizens of Pendleton were attracted to build their log cabins there by the beauty of the falls of a creek which passes the town. But along came the ravages of man, and the primeval beauty of the tract surrounding these falls was marred by an old abandoned railroad fill, an unsightly rock quarry which had long been left desolate, and the unkempt surroundings in general.

The town, now a community of 1,500, gained possession of the tract and started to restore the former beauty as nearly as possible. A municipal park of five acres, within one block of the business district, was built surrounding the falls, and a dam was placed just below the falls, making a beautiful swimming pool from one to twelve feet deep, which fills with fresh water every twelve minutes. The bottom is of fine sand, and the water as clear as crystal. This is recognized as one of the best pools in the state, and is patronized by people from cities and towns as far as twenty miles away. It cost \$3,000. By a 10-cent admission charge for persons from out of town, the pool has paid for itself the first year. It is equipped with overhead electric lights and has two neatly finished bath-houses. One thousand dollars' worth of playground equipment has been erected in the park.

The old rock quarry has been trans-



THE SWIMMING POOL IN PENDLETON, IND.

formed into a picturesque fish lake about one acre in extent, and is stocked with fish. A small cement flume carries a continuous stream of fresh water from the creek above the falls into this lake, and sharp projecting snags have been left in the bottom, thus preventing the seining of the lake for years to come.

In the park there is a free tourist camp, equipped with free gas for cooking, electric lights and running water.

D. B. COLE,
President, Pendleton Park Board.

A Ten-Months Report

Instead of publishing a general report for the full calendar year, the city of Regina, Sask., issues a report for the first ten months of the year, thus giving the citizens as full information as possible about their affairs before they record at the polls their policies for the future. There is a general meeting of the citizens on the last Monday in November to discuss the reports on civic affairs; nominations are made on the first Monday in December; the municipal elections are held on the second Monday in December. A detailed financial statement is published at the end of the year, supplementing the general information already issued.

The Tulip on Parade

BELLINGHAM, WASH.—The annual Tulip Festival of Bellingham will be held from May 10 to 12, when the tulips are in the full beauty of their bloom. Its principal feature is a parade with many floats and decorated automobiles, all showing the tulip in its glory. The undertaking is managed by the Tulip Festival Association, a regularly organized body with the usual officers and an attorney, besides a cabinet of committee chairmen in charge of the Bulb Propagation and Blossom Show, parades, concessions and entertainment, out-of-town activities, publicity, finance, and Queen's affairs and coronation. The Festival is a matter of great civic pride and has the cooperation of the Board of Education and the Superintendent of Schools.

There will be more than 5,000 school children in the parade, with probably from 100 to 125 floats and competing decorated automobiles. The costuming of the children produces a wonderfully beautiful effect, and, as is always the case where children have a part in any public undertaking, greatly increases the enthusiasm of the grown people. Last year the parade was



WASHINGTON SCHOOL FLOAT, WHICH WON FIRST PRIZE IN THE BELLINGHAM, WASH., TULIP PARADE, 1922

over a mile long and took one hour to pass a given point. Moving pictures of it were widely distributed and thus extended the number of spectators of this event.

The good will and enthusiasm of the neighboring cities of British Columbia—Vancouver, Victoria and Nanaimo—have been enlisted, and it is expected that these places will send a delegation of 5,000 persons. A ferry is being built by the Canadian Pacific Railway Company to ply between Victoria and Bellingham, making two round trips each day, beginning about the time of the Festival. The boat will carry from 50 to 75 autos and seat 1,000 persons. The route goes through the beautiful San Juan Archipelago—a famous trip for tourists.

One of the great sights during the time of the Festival is the experimental bulb-

growing station maintained by the United States Bureau of Plant Industry, where about thirty acres are planted with tulips, narcissi, daffodils, and jonquils. It is visited by people from all over the world and is intended to show that this particular section of Uncle Sam's domain can help to keep in this country the several millions of dollars that now go to foreign bulb growers.

On the Saturday night which closes the Festival there will be an impressive electrical display which will be worth coming a long distance to see. Bellingham affords the visitor a wonderful combination of the beauties of nature in this tulip show and in the proximity of the virgin forest of Mt. Baker National Park, reached over a paved road of 45 miles.

CHAS. A. McLENNAN,
In charge of Out-of-Town Activities, Tulip
Festival Association.



THE QUEEN'S CAR IN THE TULIP PARADE, BELLINGHAM

Relative Values in Public Health Engineering

By M. N. Baker

Associate Editor, *Engineering News-Record*, New York; formerly
President, Board of Health, Montclair, N. J.

ENGINEERING is the art and science of planning and doing a given task as well as it needs to be done at the least cost consistent with that end.

This definition of engineering may perhaps aid in making plain my conception of a principle which should guide public health work.

Such a definition involves a clear idea of the aims of every endeavor, the best but least costly means of attaining those ends, and the faculty of discerning the point of diminishing returns. The latter is of great importance in view of the vast amount of engineering work still undone that must await doing because of lack of money. In every city there are numerous public improvements and public services constantly making their demand upon the municipal treasury. If each demand were satisfied idealistically, the total cost would bankrupt the city and the taxpayer alike. Each improvement or service must therefore be considered in the light of its relative importance and take its place accordingly in a far-looking municipal program.

Public funds being limited, so must be the pursuit of the ideal in each branch of public-health work, in order to achieve the largest possible total gain in the saving of lives and sickness. The highest ideals in water-supply, for instance, should be postponed when additional expense for further improvement will have no probable measurable effect on typhoid or the general death-rate and while there is every reason to believe that the money needed to make the water-supply ideal would, if expended on the milk supply, effect a notable reduction in tuberculosis and infant mortality. A more striking illustration would be the concentration of health department effort on garbage disposal, as is so often the case, while no really efficient work is being done to control communicable diseases or reduce infant mortality.

Among all the engineering works that have contributed to the reduction of sickness and death and the accompanying suffering and heartbreaks, probably none equals public water-supplies—at least not on the North American continent. Probably sewerage systems come next, but if so, then it is the quick removal of human excreta from our houses and yards and streets rather than its final disposal that deserves the credit. Plumbing, except as means for distributing water to points of use and removing it after it has been soiled, seems to have but a minor relation to health. Garbage collection is more a branch of municipal cleansing or housekeeping than of health, except where garbage uncollected attracts flies that have access to privies, or rats that may spread plague. The final disposal of garbage is still less a health matter. The character of paving and of street cleansing, it seems to me, has far more bearing upon public health than has garbage collection or disposal. Where mosquitoes and malaria or yellow fever prevail, engineering works in the nature of land drainage are generally the best and cheapest means of control.

House and building design and construction, with particular reference to air, warmth and light, dryness, the saving of labor for housewives, and general convenience, play their part in public health. Heretofore, these things have been regarded as the function of the architect, but for years now we have had heating and ventilating engineers, while in various ways the engineer is becoming more and more concerned with the construction of houses and other buildings. From the engineer we may expect a reduction in the cost of housing that can come only from the introduction of labor and material-saving through systemization, quantity production and like engineering methods. With a reduction in the cost of shelter may be expected a relief from the overcrowding

and other evils that undermine health and spread disease. Housing in its broader aspects is a part of the new science of city planning, including zoning, which after so many long years of neglect is now beginning to receive some part of the attention which it so richly deserves.

I believe it is to city planning and its results that we must look for much of the future improvement in public health and particularly for a further reduction in the general death-rate in so far as these depend upon engineering work; a reduction traceable not so much to any one readily specified measure as to improvement in many interrelated causes that go to make up community convenience, comfort and mental and physical health.

More Knowledge and Better Health Index Needed

With a general city death-rate at or near 10 per 100,000; with a typhoid death-rate down to 5, 3 and even 2 or less per 100,000; with infant mortality in progressive communities well below 100 and running on down to 50 or less under well-controlled conditions; and with other elements tending to change what has been called the health yardstick to a foot rule, the public health official, and particularly the engineer, needs more knowledge than now exists of what has caused these marvelous declines in mortality and morbidity rates in the past and, of greater importance, what further declines he may expect and by what means they may be accomplished.

This knowledge is needed by the engineer in particular because it is his habit and peculiarly his function to measure the worth-whileness of proposed works and services in terms of costs and of results. Is the game worth the candle? Can the desired end be better and less expensively achieved by some other means? Would the same expenditure for some other purpose save more lives or bring more health?

For many years past the engineer measured the results of his efforts in the sanitary field by the typhoid death-rate. At least, this was true as regards water-supply, the improvement of which in the past is believed to have been the most potent engineering factor in reducing the typhoid and the general death-rate.

At the present moment, the water-supply engineer is often in a quandary as to how much additional expenditure he is war-

ranted in recommending for one supply instead of another on the possible chance that a few thousand or hundred thousand or millions of dollars—according to the size of the city—thus spent will provide water that will lessen by a shade a typhoid rate almost at the vanishing point or perchance in some way which no one can clearly and positively define reduce some other human ill. The engineer, the health officer, the city councilman and the taxpayer, each and all, need a more delicate and certain index than is available, now that typhoid has been reduced to so low a figure, of the causes of the past decline in typhoid and the probable cause of future decline. Have the engineer and the health officer come to the bottom of the curve so far as efforts against typhoid in many of our cities are concerned? Can the experts hereafter merely hold what they have already gained? If further reduction may be expected, and typhoid wholly eliminated, then by what means? Would the same, or perchance much less expenditure, capital and operating, reduce by 2 or by 5 per 100,000 the death-rate from some of the causes other than typhoid as against $\frac{1}{2}$ or $\frac{1}{10}$ of 1 on the typhoid scale? Similar questions are pertinent as to larger expenditures for sewage treatment than are considered wise by most sewage-works engineers.

Before these questions can be answered, we need what in a recent editorial discussion in *Engineering News-Record* (November 9, 1922, p. 776) was termed an intensive-extensive study of the causes of typhoid fever; a study that would take into account, chronologically, the volume and the efficiency of the several lines of work that have combined to reduce typhoid fever—such as water-supply protection, filtration and chlorination; milk ordinances, inspection and pasteurization; contact control in its many phases; better medical and nursing care; anti-typhoid inoculation. The same kind of study is needed of other causes of death and related or possibly related public-health work.

Here is a great field for the public health officer and the sanitary engineer. Particularly will it repay the earnest and skilful cultivation of the students of hygiene and public health who are soon to be the leaders among the health officers of America.

ACKNOWLEDGMENT.—From an address before the Sanitary Section, Boston Society of Civil Engineers, March 7, 1923.

Choosing a Health Bureau Chief in Philadelphia and a Building Inspector in Richmond

PHILADELPHIA, PA.—The appointment of Dr. James G. Cummings as Chief of the Health Bureau of Philadelphia is the result of an open competitive examination conducted by the Philadelphia Civil Service Commission. To show the sort of man the new Chief is and what sort of men a properly conducted Civil Service examination will produce, it is interesting to know that Dr. Cummings was Director of Pasteur Institute, University of Michigan, and Assistant in Hygiene and Physiological Chemistry, 1907 to 1915; Director, Bureau of Communicable Diseases, California State Board of Health, 1916 to 1917; Captain, Major and Lieutenant-Colonel in the Medical Corps, U. S. Army, between June, 1917, and June, 1918; and Assistant Health Officer, Washington, D. C., March 1, 1922, to date of assuming his new duties in Philadelphia.

The position of Chief of the Bureau of Health is the main administrative office of the Department of Health and is under the direct supervision of the Director. The incumbent is responsible for disease prevention and sanitary engineering in the entire service, and upon him rests the health of the whole community. A direct measure of his efficiency is told in the death-rate of the city.

When this position was vacated by John A. Vogelson, Chief Examiner Shaughnessy of the Civil Service Commission made a very careful study of the duties and requirements of the position, preparatory to scheduling a competitive examination for the vacancy. The outstanding feature of the case was the low salary, \$4,000 plus 5 per cent bonus. It was a very grave question as to whether any man with the requisite qualifications would be attracted to it.

It was decided to use the non-assembled type of examination, waiving all questions as to residence. It was further decided to advertise extensively in the institutions and health departments of the country. The plan of the examination included:

1. A complete statement of training and experience; achievements in public health work, professional connections, and papers prepared

or published which show administrative ability in this line of work. A weight of 45 per cent of the examination was given to this subject.

2. A professional paper calling for original and constructive thought on a modern health bureau, its personnel organization and the division of its activities, including the coordination of the non-official health organizations of the community. This subject was given a weight of 30 per cent in the examination.

3. An oral interview before the board of examiners. This part of the examination was designed to get at the man's executive ability and judgment in dealing with and managing a large organization. His ideas on public health administration and his manner and force were factors here considered. A weight of 25 per cent was given to this subject.

There were eight candidates, and five of these qualified by experience and were called to the oral interview. As was to be expected, the field of competition was rather narrow, because of the low salary. Notwithstanding this, however, it is believed that the city has secured one of those men who prefer to do institutional or municipal work to devoting themselves to private practise. Fortunately, there seems to be an increasing number of such men, and in time their compensation will be made adequate to the work they are called upon to do. All the men who secured a place on the eligible list have had a wide range of experience in public health work and in sanitary engineering.

The board of examiners on this examination were Dr. A. C. Abbott, head of the Department of Public Hygiene, University of Pennsylvania, and formerly Chief of the Bureau of Health (the position for which this examination was held); Dr. Ralph Pemberton, a noted physician in the city of Philadelphia, and Charles S. Shaughnessy, Chief Examiner of the Civil Service Commission.

So long as Dr. Furbush remains Director of Health and so long as Dr. Cummings renders good service, there will be no thought of politics in the Health Bureau of Philadelphia, and there are not wanting those who believe that a mighty good beginning has been made.

CLINTON ROGERS WOODRUFF.

RICHMOND, VA.—Politicians, long used to the system of patronage which placed them in choice municipal offices as a reward for party affiliations and labor, have received a severe jolt, and the use of newspaper advertisements toward securing the best men obtainable for important positions in technical bureaus of city departments has been given quite a boost as a result of the method used recently for appointing a head of Richmond's Bureau of Building Inspection.

Intimations of a changing order were given first when the Richmond daily papers printed an advertisement, signed by the Director of Public Safety, calling for applications from men whose experience and other qualifications justified their consideration as head of the Bureau of Building Inspection. Requirements as to training and practise were set forth in this copy, the duties of the office were outlined, the salary was stated, and notice was given that applications would have to be filed within a week.

Colonel William M. Myers, Director of Public Safety, discovered within a few hours after the advertisements had been published that he had dropped a bombshell whose fragments were finding marks in every section of the political camp. In years past, appointments had been made largely on the basis of a reward. During more recent years this had become one of the considerations rather than the prime factor. But Colonel Myers' advertisements served notice that "reward" and "pull" were words eliminated from his dictionary and that "training," "knowledge" and "experience" were those whose meaning applicants would be compelled to appreciate. Every wile of the experienced politician was made use of in an effort to preserve the old order, but the Director stood to his guns and fired a salvo in support of his signal shot.

He called upon the Richmond Chapter of the American Society of Engineers; Allen J. Saville, Director of Public Works, and J. A. Johnston, an engineer who has specialized in building-construction work. Of each he asked that the application be reviewed, that recommendations be made as to the six men apparently best qualified for the position, and that their findings be made without conference one with the other.

As a result of the advertisements, thirty-

nine applications were received. Colonel Myers himself considered each carefully and compared merits and demerits before noting the four men whom he considered best qualified. The names of these men were known only to himself. Those asked to assist the Director with recommendations then received the applications, and their findings likewise were kept secret until all reports were in.

It then was discovered that the four men originally noted by Colonel Myers were on each of the lists. The committee acting for the American Society of Engineers made three first and three second choices in filing their report, and their three first selections proved to be three of the four men noted by the director. On that basis, these three applicants were the only ones considered in the final analysis.

Here it was that the Director experienced considerable difficulty, due to the fact that there seemed little choice among the men as to general experience and training. Everything entering into the qualifications of an applicant for an important position was considered, even to the ages of the men seeking the office. The decision finally reached caused the Director to offer the position to a man forty-four years of age, a trained engineer with administrative ability, who had had eight years' practical experience in building construction.

The most important feature associated with his appointment, certainly in so far as a changed system of filling vacancies in municipal offices is concerned, is the fact that the successful applicant won his appointment solely upon his qualifications. But one letter was received by the Director recommending him, that being merely a letter commending his character, etc., sent by a former employer. No messages advocating him were received.

While other cities have used advertisements in an effort to bring forth applicants from the nation at large for big municipal offices, this is the first time, in the Virginia section, that the method has been used for securing an official. And it is believed there have been few instances in which so great consideration has been given to detailed qualifications at the expense of political affiliations. Only from professional politicians has there come protest.

CHARLES M. MONTGOMERY.

The Value of Sedimentation in the Purification of Water at Cedar Rapids, Iowa

By C. O. Bates

Department of Chemistry, Coe College, Cedar Rapids, Iowa

A MATTER of first importance in the process of water purification in the Cedar Rapids plant has been the introduction of a settling-basin. The basin was rather hastily improvised to relieve an approaching serious condition. The demand for water has been constantly increasing, while there has been a constant deterioration of the plant common to all overworked plants. At the same time, there has been, for a third of a century, an in-

Forty-seven years ago, when the water plant was built, the water was taken from the Cedar River and pumped direct into the city mains without treatment of any kind. The city was supplied with water for about seven years by this method. Three artesian wells were then drilled and put into use, and supplied the city with water satisfactory for all except industrial purposes. This condition lasted for five years. The wells then began to fail. This, together



COVERED SETTLING-BASINS AT THE CEDAR RAPIDS, IOWA, WATER-WORKS

crease in the pollution of the river from which we get nearly all of our water. This increase of pollution is evidenced by the increase of chlorine as chlorides. Thirty years ago the chlorine was a very little more than three parts per million; to-day it is nearly five parts per million. This may be accounted for by the increase in population in the Cedar River's drainage basin, but more particularly by the greater number of homes that have made sanitary sewer connections. Industrial wastes have also added a certain amount of pollution.

with increased demand for water on account of increased growth of the city, was the cause of bringing the greater part of our water from the river.

Serious Consideration of Settling-Basins

So the question of a settling-basin has been a matter for consideration from time to time for the past thirty-five years, but there is absolutely no surface space for such a basin in the vicinity of the water plant. The difficulty has been fairly well met for the present by building a wooden structure

of a quarter-million gallons capacity 12 feet above the ground level, covering it completely and screening it at all points where the air has access. The basin was designed and constructed by Superintendent H. F. Blomquist.

It is divided into two sections, each of which is about 85 feet long and 25 feet wide, connected by a flume permitting the water to pass from one section to the other. Each section is divided into two channels. The water enters the west section on the north side from the river, passes down the channel, which is $12\frac{1}{2}$ feet wide and 8 feet deep, the entire length of the section, curves around into the channel on the south side, returns the length of the section and passes through the flume to the east section where it traverses the length of the section twice, completing in its entire circuit a distance of 170 feet and passing over five transverse baffles. The water is in the basin about one and one-half hours.

The water coming from the river receives the alum just before it enters the pump which forces it up into the basin. The journey through the pipes from the pumps to the basin is about 200 feet. On entering the basin, the water is given a whirling motion by turbine-like vanes as it is released. This whirling motion completes the thorough mixing of the alum with the water. The floc just begins to form as it enters the basin, and a visible increase is noticed throughout the entire journey in the basin, being very conspicuous where it leaves for the filters. It is, however, broken up into fine particles in passing through the pipes to the filters.

What the Basin Has Accomplished

The basin was placed in active service February 3, 1922. During the first 68 days of service, 400 tons of sediment accumulated in the bottom of the tank, approximately 300 million gallons of water having passed through the basin. This makes a 24-hour average of 6 tons of sediment retained by the basin.

The basin was thoroughly washed the 6th and 7th of May and was run for 137 days before a second cleaning out was done on September 20. During this period, a skimmer was installed in each basin, which

carries off all the sediment that rises to the surface of the water and transfers it to sewer pipes. The amount accumulated during the summer months averaged somewhat less than during the spring months. The average was $4\frac{1}{2}$ tons per 24 hours, amounting to 650 tons during the 137 days. The average during the spring and summer was a little over 5 tons per day. This has been a great relief to the filters; in fact, it would have been impossible to give the city satisfactory water during the spring and summer months of this year without this basin. After making a determination of the average sample as to total weight of sediment in both spring and summer determinations, an average sample of the sediment was reduced to a dry powder and found to be four-fifths water and one-fifth solid matter.

Our conditions would be improved, especially as to taste and odor, if we had another basin equal in size to the present one. This would help us to take care of the water during the flood season, and would also enable us to permit the water to pass more slowly through the basin and remove a larger amount of sediment. It has been our aim at all times to make safety the first principle, and we think we have fairly well accomplished that. The number of bacteria in the final effluent is reduced to a minimum of two or three bacteria per cubic centimeter. We feel sure that the quality of the water would be improved by enlarging the sedimentation basin. The question of the quality as to taste and odor is a very complicated one, involving the knowledge of the action of the chlorine on the various impurities in the water. If we take out these impurities by sedimentation basins, we shall have less trouble from taste and odor; at least that has been our observation so far.

As compared with the raw water that was used 47 years ago when the public were not critical in regard to their water-supply, great progress has certainly been made, but people have become intensely critical in regard to the quality of water that they use. It is right and proper that they should be, and every effort should be made to give not only a safe, but a desirable water.

Five Years' Experience with Patrol Maintenance of Wisconsin Highways

By J. T. Donaghey

Maintenance Engineer, Wisconsin Highway Commission

A THOROUGH patrol system was installed in each county in Wisconsin soon after the enactment of the law creating the State Trunk Highway System, in April, 1917. The portion of the system lying in each county was divided into patrol sections by the county committee, acting jointly with the county highway commissioner and our division engineer. The patrolman for each section was selected in the same manner. The county committee advertises in the local press that on a certain day those seeking the jobs of patrolmen for the coming season must report at the county court house. The applicants "if new" are interviewed by the county committee and our division engineer, and the most promising candidates are given the positions. Applicants having served as patrolmen one or more seasons are given preference over new men, and they usually receive more salary.

Each patrolman enters into a written contract with the county and gives a bond in the amount of \$500 for the faithful performance of the work and proper care of the tools and machinery entrusted to him. The contract is also subject to the approval of our division engineer.

On "team patrol sections" the patrolman must furnish a team and wagon satisfactory to the county, the county furnishing a light blade grader, a road planer, a plow, a slip scraper and miscellaneous small tools. On "motor truck or tractor patrol sections" the county furnishes all the equipment.

The salaries paid on team patrol sections range from \$140 to \$165 per month for the 1922 season; those on motor truck and

tractor patrols average about \$110 per month. The season extends from about April 1 to December 1, and from December 1 to April 1 the patrolman agrees to work when requested at a fixed price per hour.

The "team patrol sections" average about $6\frac{2}{3}$ miles each, and as a rule are confined to earth road sections and those gravel sections that carry light traffic. We have few tractor patrol sections. They average about 12 miles in length and are generally confined to earth roads, but are sometimes preferable on heavy-traffic gravel roads where heavy maintenance equipment is

necessary. Motor truck patrol sections average about 18 miles, and are economical only on heavy-traffic roads where heavy maintenance equipment is necessary and where new material must be hauled regularly, on surface treated stone or gravel, and for work on concrete surfac-

One small village of 1,200 people in Wisconsin kept an accurate record through its banks, hotels and business houses during the 1922 season, and found that over \$1,000,000 was left in that vicinity alone by tourists—those traveling for pleasure. The visits of tourists were made possible by the well-maintained county and state highway system of Wisconsin. It has been estimated that over \$100,000,000 is annually spent in the state of Wisconsin by tourists.

ings. We find that on earth or gravel sections where traffic does not exceed an average of 200 vehicles per day, the "team patrol" is cheaper and more satisfactory than any other.

Maintenance Costs

The 1917 Legislature provided for a 5,000-mile State Trunk Highway System, which the Legislature of 1919 increased to 7,500 miles.

The following table shows the actual miles maintained by patrol methods each year, the number of patrol sections, the salary paid patrolmen, the patrol maintenance cost of each type per mile, and the amount expended per mile out of mainte-

Year	1918	1919	1920	1921	*1922
Actual miles maintained	4,998.9	4,998.9	7,234.0	7,260.4	7,458.59
Number patrol sections	561	561	791	911	940
Monthly salary team patrol	\$130.00	\$145.00	\$165.00	\$155.00	\$150.00
Monthly salary motor patrol	90.00	110.00	125.00	115.00	100.00
†Earth	135.21	154.01	187.24	196.21	186.40
†Gravel	120.80	133.63	184.68	193.85	183.25
†Stone and gravel surface treated....	574.21	626.33	706.11	682.23	671.84
†**Concrete	162.21	210.42	220.18	322.21	311.85
Cost patrol maintained	573,042.16	767,302.12	1,220,535.00	1,326,927.24	\$1,355,900.00
Cost of betterments	396,449.65	488,529.68	756,474.38	\$1,028,976.04	952,850.00
Cost of marking and signing	7,888.22	17,776.16	28,820.61	20,462.14	41,250.00
Total expenditures	\$977,430.93	\$1,273,607.86	\$2,005,829.89	\$2,381,413.85	\$2,350,000.00

The above total expenditures average \$278.00 per mile per year.

*Final costs will vary somewhat from figures shown, as the season is not complete at this date (December 15, 1922).

**Annual costs include all shoulder maintenance, which runs high on all surfacings less than 18 feet.

†Patrol maintenance cost per mile.

nance funds for "betterments." "Betterments" consist of widening the road and providing drainage with heavy blade grader work, light resurfacing, new culverts, and the cost of marking and signing the system.

County Trunk Highways

During the first month of patrol maintenance in 1918, the actual driving conditions in Wisconsin were improved far beyond the expectations of the most optimistic friends of patrol maintenance. Again, when the entire system was adequately marked during the week of June 22, 1918, making it possible for the dumbest person from any state to travel the length of Wisconsin without asking directions, our hopes were fully realized, and the public expressed their approval of the system in no uncertain terms.

Several county boards met during the month of June, 1918, and provided for adopting patrol maintenance on important secondary roads. The growth of this sentiment is shown by the following table giving the miles of county trunk highways taken over for maintenance each year by the several county boards, number of patrolmen employed, salary, cost of marking and signing, and total expenditures:

Year	1918	1919	1920	1921	1921
Miles maintained	2,021	5,590	7,743	8,980	9,885
Number of patrolmen	232	705	970	1,123	1,236
Average monthly salary of patrolmen...	\$125	\$140	\$160	\$150	\$145
Cost of maintenance	475,000	\$1,226,267	\$1,435,527	\$1,867,615	\$2,279,804
Cost of marking and signing	3,600	9,300	8,100	11,000
Total expenditures	\$475,000	\$1,273,607.86	\$1,444,827	\$1,875,715	\$2,290,804

The above total expenditures average \$214 per mile per year.

Results Obtained

After five years of patrol maintenance we find that the following conditions prevail:

1. Every town, city or village in the state is on a well-maintained and marked highway.

2. Traffic is distributed over a large mileage, reducing congestion on many highways.

3. The average speed of traffic has been increased at least 10 miles per hour, resulting in time-saving beyond computation.

4. Night driving is safe and practical, and our traffic census shows a marked increase each year in night traffic.

5. Prosperity immediately becomes noticeable. The farmers along such routes soon vie with each other in promoting neatness in their road fences, farm buildings and entrances. Farm names appear over the gateway, and the mail boxes are given a fresh coat of paint.

6. Last, but not least, is the tourist, and our definition of a "tourist" is any person using our highways for pleasure, whether a resident of Wisconsin or not. It is extremely difficult to estimate the total amount spent in Wisconsin by tourists. The little village of Kilbourn, located at the lower entrance to the "Dells of the Wisconsin," containing a population of but 1,200 people, furnished us accurate records kept by the banks, hotels and business houses

for the 1922 season, showing that over one million dollars was left in that vicinity alone by tourists.

ACKNOWLEDGMENT.—From a paper read at the annual convention of The American Road Builders' Association, Chicago, January, 1923.

A Unique County Playground

By Luther H. Hodges

IT was the afternoon of July 22, 1922, that I followed a line of autos bound for a "speaking" near the center of Rockingham County, North Carolina. When I arrived at the gathering-place I found over four hundred autos of all descriptions and sizes parked near the Y. M. C. A. hut just beyond a clearing in the woods. The people from these cars were streaming down into the woods, from which came the sounds of band music.

It was the opening day of the Rockingham County Playground and I was one of nearly three thousand people from all parts of the county who had come to witness the opening of this new and unique institution. It was a wonderful day, and the speaker, a popular college president of North Carolina, thrilled his audience as he told of the tremendous possibilities tied up in this wonderful place. He reminded his hearers at the playground that it was the first county-owned and county-controlled playground in North Carolina or elsewhere.

Following up a very remarkable County Older Boys' Conference held at Spray, N. C., in January, 1922, some of the citizens of the county began to make plans for

a central meeting place in the county where such conferences could be held and where various groups of campers from the Y. M. C. A.'s and other institutions could go for a week's camp and outing.

Along in May a group of representative citizens secured from the County Commissioners nearly ninety acres of land on a lease and appointed a Board of Trustees to have the land in control. The stretch of land was ideal for the purpose; it lay near the center of the county and was rugged and beautiful, with enough level spots on the stretch to make development quite practical. There was a small stream running through the property between two high banks, and at a narrow point between these banks a dam was thrown across the stream, which made an ideal and very picturesque swimming hole. Diving-boards, rafts, and rope swings all fitted nicely into the natural arrangements of the swimming hole, and one of the most vital problems in the camp and playground was settled.

A winding road about a half-mile long was cut out and graded from the main county road into the playground, and a baseball diamond was made ready. Just to the



THE OLD SWIMMING HOLE—ROCKINGHAM COUNTY PLAYGROUND



CLASS IN FIRST AID—ROCKINGHAM COUNTY PLAYGROUND

left of the baseball field and at the main entrance to the ground was erected an attractive "Y" hut, a gift of the Associations of the county. On beyond this and toward the swimming hole was built a serviceable and convenient Red Cross hut, which was fitted up attractively. Beyond the Red Cross hut was a dining-room with a seating capacity of about two hundred. The dining-room was completely outfitted. Dotted about over the playground were swings, slides and seats, here and there were natural trails and artificial paths, and over in the woods across a little divide was built a wonderful lodge for the girl campers of the county. Several citizens of the county also built private huts, and a dozen or more tents were brought out and set up ready for use.

All this was done in two months' time and the county could hardly believe its eyes. But soon the people began to believe in the playground and to use it. Every Sunday afternoon during the rest of the summer the playground was visited by hundreds of people, who came from all parts of the county to hear a lecture, listen to a conference, meet friends, or take a stroll in the woods while the children were playing or

swimming. Camping parties have been numerous and the campers have had organized play and instruction. The Red Cross hut has been the scene of much activity. The nurse in charge has given many practical demonstrations, conducted classes among the campers, weighed and examined hundreds of babies and kept busy all the time. Boy Scouts, Camp Fire Girls, Canning Club members and others have found an ideal camp in their own county and have learned to know each other better. A county-wide Sunday School Convention has been held there, and a multitude of picnics from churches, Sunday schools, Masonic bodies and industrial organizations have been enjoyed by people from every section.

The directors, who are representative men and women of the county, are planning to have a full-time manager for next year, with an intensive program that will reach all the people in the county. Their object is to promote and encourage civic virtue and to aid in the development of the physical, educational, religious, charitable, literary, and social interests of Rockingham County.

And the people of Rockingham County are controlling and supporting their playground and believe in its future.

Metropolitan Planning for Chicago and Environs

Conferences of Villages and Cities About Chicago Called by City Club

By Mayo Fesler

Executive Secretary, City Club of Chicago

THAT Chicago has become aroused to the need of regional planning is evidenced by the large attendance of representatives from the municipalities and civic and commercial organizations in the metropolitan area at a meeting which was called by the Chicago City Club on Saturday, March 3. As a preliminary to the conference, the City Club's Committee on City Planning and Zoning prepared a brief report setting forth the need of metropolitan planning for the Chicago area, calling attention to the rapid growth both in the city and in its environs, the lack of adequate radiating highways, the need of better transportation facilities, the absence of sufficient sanitary regulations, and the need of zoning for the whole district.

The speakers were Dwight H. Perkins, Vice-President of the City Club and representing the Forest Preserve District; Charles H. Wacker, President of the Chicago Plan Commission; Samuel Insull, president of several large public utility corporations; Mayor H. A. Pearsons of Evanston, representing the cities outside of Chicago; Charles S. Peterson, representing the Board of County Commissioners; Dr. W. E. Evans, representing the health districts and officers outside of Chicago; Jacob L. Crane, Jr., city planning consultant; and Professor Charles E. Merriam, former member of the City Council and Professor of Political Science at the University of Chicago.

More than 200 delegates were present, which indicated the widespread interest in the movement. The delegates from the smaller cities and villages were somewhat apprehensive lest the movement meant another effort at consolidation with Chicago; but the City Club in the invitation assured the delegates that it was not a disguised attempt at annexation, and that any planning project must assume at the beginning

that the several cities and villages will insist upon maintaining their independence and autonomy.

Chicago has had for many years an efficient City Planning Commission at work on internal improvements and embellishments. This regional conference was intended to emphasize the need of broader and deeper planning—broader in the sense of including the city's environs, and deeper in the sense of planning not only for the embellishment of the city, but for its commercial and industrial development, its sanitary protection and the simplification of the governmental machinery.

The City Club's report shows that there are more than 340 local governmental units within the metropolitan area—14 cities, 83 villages, 191 school districts, 29 townships and 31 park districts—expending taxes for local purposes. Chicago adds to her population every ten years a city the size of Baltimore. This increase occurs in spite of the increasing exodus from the city to the numerous attractive suburbs. Chicago's population during the last decade increased 23.6 per cent. The population of the suburban territory, ten miles in all directions from the city limits, increased 76.3 per cent. In other words, the environs of Chicago are increasing in population three times as rapidly as the city itself. According to the estimates of the Bell Telephone Company, the city will have a population of 4,000,000 by 1940. If the present rate of growth continues, the environs will have by 1950 a population of at least 2,000,000, or a total population for the district of at least 6,000,000.

Very little attention has yet been given to the planning of the portion of this metropolitan area where this rapid growth is taking place. Already the development of industrial areas near residential districts or forest preserve lands is causing alarm.

Many of the residential suburbs are being seriously damaged by the encroachment of industries. Highways are becoming badly congested with the development of automobile traffic. Transportation lines are not being extended rapidly enough into the undeveloped areas. On every hand there are evidences of the need of definite planning, the various phases of which were presented by the several speakers. Resolutions were adopted calling for the appointment of a Committee of Twenty-One citizens representing the various sections of the metropolitan district, to consider and recommend "a method by which planning for the entire metropolitan area may be successfully undertaken, the features to be emphasized in such planning, and the extent of territory to be included in the proposed metropolitan planning district."

Distinguished Town Planners and Architects to Cooperate on Regional Plan of New York and Its Environs

THE appointment has been announced of an advisory group of town planners to cooperate with Nelson P. Lewis, who is in charge of the physical survey of the Plan of New York and Its Environs. The boundaries of the sectors for which each consultant will be responsible, are as follows:

Thomas Adams—Area north of city and east of Hudson, including Westchester County, and part of Putnam and Fairfield Counties

Harland Bartholomew—Passaic County and parts of Orange, Rockland, Bergen, Morris, Essex and Hudson Counties in New Jersey

Edward H. Bennett—Richmond County and parts of Middlesex, Monmouth and Somerset Counties

George B. Ford—Union County and parts of Essex, Hudson, Middlesex, Somerset and Morris Counties

John Nolen—Area to west of Hudson comprising parts of Bergen, Rockland and Orange Counties, and on east of Hudson comprising parts of Putnam and Dutchess Counties

Frederick Law Olmsted—Nassau and Suffolk Counties and undeveloped portions of Queens

The Committee on the Regional Plan of New York and Its Environs has also announced that arrangements have been completed for enlisting the cooperation of a group of the most distinguished American architects in its work. Through the efforts of its late Chairman,

The committee will determine whether the financing of the project should be undertaken by private funds or by a publicly constituted body.

One of the difficult angles to the problem will be the fact that the metropolitan district lies in two states, Illinois and Indiana, and a public planning commission covering the entire district would require the joint action of the two states. The problem in Chicago is by no means as simple as the New York metropolitan planning project, which is being financed by the Russell Sage Foundation, or the Los Angeles regional planning effort, which is being financed from county funds. But the unanimity of opinion that something must be done would indicate that Chicago has determined to find some method by which regional planning can be undertaken and made effective.

Charles D. Norton, whose recent death has dealt a heavy blow to city planning, a small number of architects have been for some time at work upon particular localities. These have called in associates and friends to make up informal teams.

The list of architects is not yet complete, but among the architects who have volunteered their services, are the following:

Frederick L. Ackerman
Chester H. Aldrich
Jerome R. Allen
Grosvenor Atterbury
Louis Ayres
Henry Bacon
Donn Barber
William A. Boring
Welles Bosworth
Arnold W. Brunner
Charles Butler
Harvey W. Corbett
John W. Cross
William A. Delano
Burt L. Fenner
Ernest Flagg
Cass Gilbert
Bertram G. Goodhue
Howard Greenley
Thomas Hastings
Frederic C. Hirus
Henry F. Hornbostel
John M. Howells

Joseph Hunt
R. H. Hunt
Robert D. Kohn
Grant C. Lafarge
Guy Lowell
H. VanB. Magonigle
Henry Rutgers Marshall
Benjamin W. Morris
Charles A. Platt
John Russell Pope
J. Otis Post
James Gamble Rogers
Philip Sawyer
C. B. J. Snyder
Clarence Stein
I. N. P. Stokes
Egerton Swartout
A. J. Thomas
Breck Trowbridge
John V. Van Pelt
D. Everett Waid
Louis S. Weeks
Lawrence Grant White

We Apologize to the Dust

A MICHIGAN reader of THE AMERICAN CITY sends us this message of commendation and of criticism, both of which we are glad to accept:

"In your March, 1923, editorial on the subject of 'Getting Ready for Summer,' we notice that your editors have brought to the attention of your readers practically

every conceivable summer suggestion but that of eliminating the dust nuisance. Of course, we will admit that no doubt your editorial staff all live on paved streets and naturally do not have this subject brought to their attention, but we believe that in some future edition it would be well to call your readers' attention to this provision."

Use and Abuse of Systems of Separate Sewers and Storm Drains--Can Their Failure Be Prevented?--II

By Harrison P. Eddy

Metcalf and Eddy, Consulting Engineers, Boston, Mass.

Remedies for Misuse of Separate Sewers and Storm Drains

GREAT care should be exercised in the selection of the type of sewer system to be installed. It should not be assumed that separate sewers are more advantageous, but conclusion should be reached only after careful study of all the conditions, including comparative estimates of cost. In making such studies due weight should be given to the value of the opportunity for disposal of roof water into sewers and to the inequity of affording such facilities to a portion of the property owners and withholding them from others. It may be accepted as a fact that residents will not tolerate standing water in their cellars. In thickly settled communities water cannot be allowed to flow over sidewalks to the street gutters, and, at least in the northern portion of the country, roofs and areas cannot satisfactorily be drained into gutters by pipes passing under sidewalks. Topography, character of soil, climate, present and prospective density of population, frequency and intensity of precipitation, as well as conditions influencing the problem of sewage disposal, are among the important considerations bearing upon such a selection.

It is possible that the zoning system, which is now being favorably considered in many American cities, will simplify the problem of determining the character of sewerage and drainage works to be provided. Whereas formerly it was impossible in many instances to forecast with accuracy the character of development which was likely to take place in the different portions of a city or to provide systems to meet all contingencies, the zoning system now facilitates more accurate forecasting of future sewerage and drainage requirements and there is greater assur-

ance that the assumed future conditions will be realized.

The so-called "English system" has been advocated by some. In this, allowance is made in the separate sewers for such roof water as abutters may choose, or may be permitted, to discharge into them. In some places the unlimited disposal of roof water in this manner would result virtually in a combined system, since roof areas may well equal street areas, and where the community is thickly settled the extent of roofs may be three or four times that of the streets. It is doubtful, therefore, if the "English system," so-called, is of very general application. It must be conceded, however, that some extraneous water will reach separate sewers. Some roofs will be connected through error or surreptitiously. Some cellars will be drained, and some defective connections with sewers are inevitable. Reasonable allowance must therefore be made for such conditions.

Far greater care should be exercised in the construction of separate sewers than has been the case in many instances, in order that the sewers may not become overtaxed because of large quantities of ground water entering them.

Greater effort should be made to secure excellency of workmanship in the construction of house connections. In many cases sewers have been laid in an excellent manner and have been reasonably water-tight; later, however, through carelessness in the making of house connections these systems have been subjected to serious abuse. Mr. Dittoe has suggested* that

"... The most logical and effective method of accomplishing this is the construction by the municipality of all connections to the public sewers from the building to the street sewer and the continuation of municipal control over such connections after they are constructed.

* Proceedings, Am. Soc. C. E., December, 1921.

The sewer department would organize its construction gangs for this work or would enter into annual contracts with responsible contractors, and the property owner would pay to the city the cost of construction, inspection, and recording."

" . . . It is believed that this method of construction would insure better construction of the connection at lower cost, would largely prevent the misuse of sewers, and would assist in securing efficient operation of sewage treatment processes. Incidentally, it would probably arouse a more lively interest on the part of the city officials in the management and maintenance of the sewerage systems and would likewise remind the public that the system is an important feature of the community development and must be controlled in a businesslike manner if its value is to be realized."

There is much to be said in favor of Mr. Dittoe's suggestion. Where connections are made by contractors, however, the contractors should be licensed annually and should give bond for the faithful performance of their work.

More effective control of the construction and maintenance of house connections should be secured in many cases. Generally such control should be vested in the official in charge of the sewer system. When connections are to be made, written applications therefor should be filed, and written permits for the connections should be issued. The official in charge should be notified when the work is to be done and should provide for the necessary inspection. A record of permits issued and used should be kept in a book provided for this purpose. The inspector's work should also be made a matter of record.

Cooperation between certain municipal departments is very important in securing satisfactory plumbing and house connections. The extent of such cooperation and the departments affected depend upon the local system of conducting the municipal work. The department which has charge of plumbing inspection should require the filing of sketch drawings showing the work contemplated. Before issuing permits for such plumbing these drawings should be submitted to the official in charge of the sewers, for his approval. If the drawing shows erroneous connection of roof water and fixtures within the building, the sketch should be returned to the plumbing contractor for the necessary revision. Until the drawings have received the approval of the sewer official, the plumbing permits must not be issued. It is necessary that

the plumbing inspectors understand the importance of the separation of roof water from sewage and that they shall conscientiously carry out the regulations to that effect.

It is also advisable to provide against incorrect connection made through error. In the city of Philadelphia the usual sewer and drain connections are 5 inches and 6 inches in diameter, respectively; thus it is easy to determine with which pipes the plumbing systems should be connected. In another instance the bells of the cast iron pipes inserted into the foundation wall by the drain-layers are painted white in the case of storm-water drains, and black in the case of sewers.

Complete and accurate records and record drawings of all sewers and drains should be filed in the municipal offices in a manner which will make them readily accessible for reference. Instructions as to the proper use of the systems should be provided by the engineers having their design in charge. Such instructions should be in permanent form and so placed, filed and disposed as to be always in evidence and available. Wall maps, house connection application blanks, permit books and permit blanks should have displayed prominently upon them the proper restrictions upon the use of the sewers and drains.

Suitable statutes or ordinances should be enacted to provide for the proper regulation of house connections. It is expecting too much of city officials to rely upon them to enforce such regulations unless they are specifically set forth in the state laws or in the municipal ordinances. Appended hereto are excerpts of a few laws and ordinances which are typical and may be suggestive to any reader who may be interested in framing a similar statute or ordinance. While a state law is applicable to all municipalities within that state, it may lend local assistance to have in addition thereto the same regulation embodied in the municipal ordinances.

While much can be accomplished by such measures as have been suggested herein, after all, the success of systems of separate sewers and storm drains must depend primarily upon the integrity, loyalty, knowledge and backbone of the city officials in charge. They should recognize that it is one of their important duties,

for the faithful performance of which they have taken oath, to see to it that the sewer and drainage systems are not misused and abused. There is no doubt that in many instances the strict performance of their duty will be unpleasant. In certain aggravated cases such performance of duty will doubtless result in a search for a new position. Nevertheless, it is the author's firm conviction that in many cases systems of separate sewers and storm drains can be saved from failure only by the loyal performance of this duty by the city official upon whom the responsibility devolves.

State and Municipal Ordinances

The General Laws of the Commonwealth of Massachusetts—1921.

Chapter 83, Section 5.—“In this section surface or storm water and such other waters as shall be specified by the department of public health shall be designated as waters and all other waters and sewage shall be designated as sewage. When a town has provided both a drain for waters and a sewer for sewage in a public way, the owner of every parcel of land abutting on such way or connected with such drain or sewer shall arrange his plumbing so that the waters shall be kept separate from the sewage; and shall make such connections with the drain and sewer respectively that the waters shall pass into the drain and the sewage into the sewer in accordance with the directions of the board or officer having charge of the repair and maintenance of sewers in such town.”

Revised Ordinances, City of Worcester, Mass.—1909.

Chapter XXX, Sec. 2.—“The plumbing and draining of all buildings, public and private, shall be executed in accordance with plans and specifications previously submitted to and approved in writing by the Board of Health. Plans and specifications of such plumbing and drainage shall in each case be submitted upon blanks in such form as the Board of Health shall order, and placed on file in the health department. No person shall commence work on such drainage or plumbing until such plans and specifications shall have been submitted to and approved by the Board of Health and a permit issued therefor.”

Chapter XXXIV, Sec. 4.—“The superintendent of sewers shall grant permits to individuals to enter their drains into the public sewers and drains, in accordance with the terms of this chapter and the rules and regulations made therefor by the City Council, and shall keep a complete record, in books made for that purpose, of such permits, giving the name of the street, and the number of the estate, if any, name of the owner, size and kind of side drain entered, and the name of the drain-layer making the entrance, and such other facts in connection therewith as may be of importance as matter of record.”

Chapter XXXIV, Sec. 5.—“Applications for permits to connect any private drain with a public sewer must be made in writing to the superintendent of sewers, by the owners of the property to be drained, or by

their authorized attorneys. Said application must be accompanied by a clear description of the premises to be drained, and drains required.”

Chapter XXXIV, Sec. 8.—“Drains and private sewers connecting with public sewers shall be of such size, and laid at such grade, and at such depth as the city engineer or his assistant shall direct. The expense of such engineering, not exceeding 50 cents for each hour or fraction thereof for the engineer, and 25 cents for each hour or fraction thereof for the rodman, shall be paid by the drain-layer applying for the permit, upon the completion of the work . . .” “All work of every kind connected with the laying of such drains, including all repairs, shall be subject to inspection by the superintendent of sewers and be done to his satisfaction.”

Chapter XXXIV, Sec. 14.—“No roof water, surface drainage, or other unpolluted water shall be turned into a sanitary sewer, but may be turned into surface water drains wherever such drains are provided. On hill tops and in other places where it is not intended to provide surface water drains, all roof water and surface drainage may be discharged directly onto the premises of the abutter or into the street gutters, and all pipes or conduits passing under or through sidewalks shall be of such material and pattern and constructed in such manner as shall be directed by the street commissioner. No surface water shall be so discharged as to flow over or upon sidewalks. In sections of the city provided with combined sewers and where surface water drains are not provided, surface water may be discharged into said sewers through pipes separate and independent from pipes carrying sewage, and such pipes shall be laid at such grades, depths and to such points as shall be required by the city engineer, so that they may be at any future time disconnected and connected with main surface water drains.”

Chapter XXXIV, Sec. 16.—“No person as a drain layer shall make any entrance into any sewer unless he be duly licensed by the license board; and such person so licensed shall give a bond, in a sum not less than one thousand dollars, for the faithful performance of such work as he may execute, and to make good any defects which may appear in any sewer, street drain or work done by him, and to remunerate the city and any person for loss or damage occurring in consequence of any act done under any permit granted him.”

Chapter XXXIV, Sec. 18.—“Any drain layer violating any provision of this chapter shall, in addition to the general penalty provided for the violation of these revised ordinances, forfeit his license.”

Revised Ordinances of Brockton, Mass.—1899.

Chapter 5, Section 36.—“No water shall be discharged from the roof of any building, so as to flow along or across any sidewalk upon any street in which a public drain has been laid; and the conductors for such water shall be made by the owner of such building to connect with such drain, under the direction of the committee on sewerage and drainage on the part of the board of aldermen, or such person or persons as they may designate thereto.”

Chapter 28, Sec. 8.—“No persons shall enter, or attempt to enter, a private drain or sewer into a common sewer or its connections, or into the underdrain constructed in connection therewith, unless he is duly licensed thereto, and no person shall cut into, interfere with, or obstruct a common sewer.”

ACKNOWLEDGMENT.—From a paper read before the 1922 convention of the American Society for Municipal Improvements.

St. Jerome, Quebec, Has Won a Forestry Prize

THE cash prize of \$250 offered by Frank J. D. Barnjum to the municipality in the province of Quebec that inaugurated the best municipal plantation, has been won by St. Jerome, in Lake St. John County. The money has been paid

over to the Council, and the good work begun has thus already received a recompense. This idea may be an incentive to others to give practical effect to their convictions about the necessity for the reforestation of the many denuded lands.

The Responsibility of the Community to the University

By Dr. L. D. Coffman

President, University of Minnesota

THE American city in which is situated a university has quite as much the duty to discover the ideals of a true university and to attempt to adjust itself to those ideals as the university has the duty to adjust itself to the practises of the community.

For a number of years I have heard addresses and papers on the subject of the adjustment of the schools to the community. I think the movement thus represented has resulted in great good. It has stimulated the schools to render new types of service, and it has lifted into relief the best things that communities stand for; but I have never heard a paper read upon the adjustment of the community to the schools. The assumption is wide-spread that progress in schools follows in the wake of progress in a community, that new ideas, new pressures, new sanctions are always created outside the schools and later reflected in the schools.

They say it is part of the school's business to study society as it expresses itself in given communities, and then to adjust itself to the changes that are taking place in society. No student of education would deny the wisdom of this point of view, nor would he minimize the desirability of the school's keeping in touch with the world outside, but the point of view that communities are the only agents of progress could hardly be substantiated. Real progress is becoming less a matter of hit or miss, less a matter of chance, or trial and error, as it is sometimes called. True progress must be based upon an intelligent examination of the facts, upon the work of the man in the library or in the laboratory, or of the investigator.

The Establishing of Institutes of Research

In our large cities, research of almost every description is encouraged and supported by manufacturing and mercantile establishments. No one knows how much

money is spent in the course of a year for private research. It has been estimated that between \$75,000,000 and \$100,000,000 is spent annually for research in the field of engineering alone. If the establishments that provide this money would concentrate by building institutes of research at their urban universities and by granting subventions for maintenance and for work upon the various projects in which they are interested, large salaries could be paid to members of the staff, men of unusual capacity and ability could be retained upon the staff, and greater progress could be made in the conduct of the research. Furthermore, it would permit researchers to perpetuate their kind, that is, to train other men in the technique of research.

For the Broadening of Life

Another thing which a city can do for the university located within its environs is to aid the university in beautifying its campus and the environment of the campus. Money for the support of the actual work of the university is essential to its life and development. Gifts should be made to provide buildings and books, to endow chairs and bureaus of research. Gifts should also be made to provide those things which are not absolutely essential for classroom instruction or laboratory analysis, but which minister in a distinctive and fundamental way to the general life of the institution.

Character is not a matter of intellect merely. It is the sum total of all the influences that the individual has experienced. These outside relationships and contacts, in the long run, are quite as important in the formation of character as the knowledge acquired in the classroom. The city, therefore, should assist in providing all those things which aid directly in developing that subtle, pervasive and powerful influence known as the "institutionality" of the institution. An auditorium, a chapel, a campanile with chimes, a stadium, proper resi-

dence halls, beautiful decorations upon the walls of the buildings, fine paintings and statuary, and a beautiful campus are the types of things that I have in mind.

The university wants these things, believes that it needs them, continually emphasizes their importance in the building of character. Communities generally recognize the need—at least they acquiesce in it—but quite as frequently they do little to satisfy it. What a tragedy it is to find a university of which the people are growing prouder every day, located in a great urban center, surrounded by all kinds of manufacturing establishments and hedged in by a network of railways, which constantly pour clouds of smoke over the campus and buildings! Every step possible should be taken to correct such a condition. It cannot be done in a day, but the city planning commission, wherever such a commission exists, should give consideration to the appearance of the neighborhood surrounding the university, and should join with the university in providing conditions that will make the latter as attractive as possible. There is no substitute for good books and fine teachers, nor is there any substitute for attractive environments.

A Wholesome Environment

Another condition to which the city should

give serious attention is the enforcement of law and order and the provision of as moral and religious an environment as is humanly possible for the young people of the university. How disposed we are to parade the misdeeds of a student guilty of some violation of law! How disposed we are when some member of the teaching staff trespasses the moral code, to announce it to the world with headlines! I hold no brief for the misconduct of any one connected with an educational institution, and it may be that the lurid accounts of their misconduct have a wholesome effect upon other persons connected with the institution; but, considering the matter by and large, there is little reason why we should expect more in the way of citizenship and conduct on the part of students and faculties than we do of citizens generally.

Is it possible for a nation to survive when it is partly law-abiding and partly law-disregarding? Is it possible for young people to be trained in the ways of righteousness and rectitude when their fathers and mothers and friends in adult life in the community play fast and loose with the ideals that they are being taught? Can there be a double standard of morals?

ACKNOWLEDGMENT.—Abstract of address delivered by Dr. Coffman before the Association of Urban Universities, at the University of Minnesota, November, 1922.

The Tourist Camp---Asset or Liability?

“THE case against the Tourist Camp” as presented by City Manager Earl C. Elliott, of Wichita, Kans., in the January Number of THE AMERICAN CITY, has brought to Mr. Elliott a letter from Commissioner S. C. Pier, of Portland, Ore., a former resident of Wichita, from which the following paragraphs are quoted:

Your experience, as you relate it, certainly has not been a happy one, and it is possible that it is largely for the reason that your camp was not up to the standard necessary for success. It is my experience that an auto camp cannot be entered into in a half-hearted or small way, but that in order to attract a desirable class of tourists, it must be quite up to date for the care and entertainment of guests. As Commissioner of Finance and Parks and Playgrounds of the city of Portland, the supervision of the auto camp naturally came under me, and I am pleased to relate that after our second year's experience in 1922 we are very enthu-

siastic over this means of entertaining guests from away and giving them a happy and profitable impression of our city.

At our municipal auto camp last season, beginning May 1 and ending December 1, we had 11,260 cars, containing 38,376 people. Every state in the Union and many foreign countries were represented by one or more cars. For example, there were:

- 92 cars from New York
- 220 cars from Illinois
- 261 from Canada
- 2 from the Hawaiian Islands
- 2 from the Canal Zone
- 1 from China
- 2 from Honduras
- 2 from Mexico
- 1 from New Zealand
- 1 from Norway

The equipment of our camp includes a community house with a large stone fireplace in the reception room, comfortable furniture, most of the desirable periodicals and a large writing desk with pen, paper and ink. An information clerk is on duty here. In this building are two toilets, one each for men and women. The



ENTRANCE AND ADMINISTRATION BUILDING, MUNICIPAL AUTO CAMP, PORTLAND, ORE.

camp covers 24 acres, beautifully wooded, with avenues and camping places, making the entire tract available. It is equipped with four batteries of 16 gas stoves each, and a laundry with up-to-date tubs and hot and cold water. The ground is completely sewered, and there are 8 up-to-date toilets located at convenient places throughout the camp. Electric lights are to be found in the streets, in the building, and over the cooking apparatus. There are two large outdoor brick and steel-covered cooking furnaces for those who prefer them instead of the gas. A double washing rack for cars has been provided. Located just at the edge of the camp is a store concession carrying a complete line of groceries and vegetables, and serving light lunches, soft drinks, ice cream, etc. Gasoline and oil are furnished at regular down-town rates to those who desire that service.

When a car drives into the camp it is registered as follows: name of owner or chauffeur; number of passengers; residence; (city and state), and number of car. Visitors are met at the gate by a keeper with a smile. They are assisted to a location by a helper, who has been given lessons in courtesy and whose business it is to see that the tourist is located in a satisfactory way. Our fees are 50 cents per day per car for 4 days. If the guests desire to remain longer, they are given the privilege of 6 more days without pay, allowing each tourist to stay 10 days if he desires to do so. No car is

allowed to return to the camp until the expiration of 30 days unless the tourist gives notice when he leaves that he desires to return before that length of time.

By city ordinance the camp must be self-sustaining. Last year our total receipts were about \$12,000. This revenue, the payment of which is perfectly satisfactory to the tourists, is sufficient for us to maintain the camp and add a few improvements each year. I have found that tourists who have complained of this modest charge are invariably a class of people that we do not care to entertain.

There is a great deal of satisfaction to our city government in bringing happiness to such a large number of people; but, aside from that,



ONE OF THE CAMP KITCHENETTES

returns come to the city by encouraging people to come here to locate and by their spending during their visit for groceries and material for consumption as well as for gifts for those at home. I have a record of 17 purchases of real estate in the city of Portland by tourists and of 7 other visitors who are now located here and are doing a profitable mercantile business in different lines. No doubt there were many more of whom we have no record. I am sure that the reports that these tourists have been able to take back to their homes of what this country has to offer in lands, scenery, climate and the varied productions of our soil, our

rivers and our great shipping port are a big factor in the steady increase of population that is now coming to Portland. Added to the knowledge of our opportunities, the fact that each guest has been given careful, courteous treatment helps mightily in creating an impression favorable to our city. You could not conceive of another advertising medium that would stand for as much for the upbuilding of your community as a well-conducted auto camp—bearing in mind the fact that no auto camp can succeed on a free basis, but that there must be added to it the dignity of a reasonable charge for service.

Sanitary Obligations of Municipalities to Tourists

THAT it is distinctly the duty of states and communities to maintain tourist camps to provide the necessary sanitary facilities for the protection of tourists and of persons living in the immediate vicinity of such camps is strongly emphasized by *Minnesota Municipalities* in its issue of February, 1923. To quote in part:

"It is estimated that 500,000 automobile tourists visited Minnesota during the past season. This number constitutes an army of approximately one-fifth the size of the United States troops that went overseas during the world war. The army, during the war, was under the strictest sanitary regulation, and every precaution was taken to protect its health. This army of tourists which now passes through our state and uses the tourist camps provided for it, is not so fortunate, for the reason that many camps lack sanitary facilities for the

protection of the people who use them. In-sanitary conditions at these camps also make it dangerous for those living in the vicinity of the camps.

"Two sanitary provisions are absolutely necessary in a tourist camp, namely: (1) a safe water-supply; and (2) the proper disposal of sewage, human excreta, garbage and other wastes. Many camps lack both and are a menace to the health of the people, and to the business interests of the state. . . .

"The measures required to safeguard the tourists and the people in the communities where tourist camps are located are well known, but the problem, as a whole, is not simple. It involves: first, an intelligent understanding of the situation by the people; second, the cooperation of state and local authorities and the support of official and voluntary organizations; and third and most important, the fixing of the responsibility for the maintenance of sanitary conditions."

\$16,000,000 Worth of Water-Supply

THE property of the Bureau of Water, Portland, Ore., based on the historical reproduction cost, is valued at \$16,042,974, according to E. C. Willard, consulting engineer, who is making a study of the entire Water Bureau. This value does not include the estimated worth of the water rights, which are naturally high, but does include \$293,926, representing the value of certain privately owned water-mains not yet taken over by the Bureau. There is also included in this value the estimated cost of all services to the curb, as these are maintained and replaced by the Bureau, although in a large number of cases they have been paid for by the property owners.

The tabulation made from this report shows that the biggest single item of investment is the equipment, including pipe lines, mains, reservoir, the pumping plant and similar equipment. This item alone is given as \$14,550,364. Other items making up the total valuation include rights of way and easements, \$11,380; total lands used in operation of property, \$770,667; total buildings, fixtures and grounds used in property operation, \$235,705; total stores and working capital, \$341,644. land held in reserve, \$196; total buildings, fixtures and grounds held in reserve, \$510; equipment held in reserve, \$15,039, and the investment property, \$110,469.—*The Oregonian*, Portland, Ore.

Hints, Helps and Happenings

A Commission-Manager Charter with City-County Consolidation for Butte Has Been Approved by the Montana Legislature

The bill drafted by Professor A. R. Hatton to provide for the merging of the corporate existence of all the cities and towns in the county of Silver Bow, Mont., into one municipal government under the corporate name "City and County of Butte," under a commission-manager plan of government,* was adopted by the Montana Legislature on February 27. The next move in the program of the Butte Chamber of Commerce, which has been the leader in the movement for city-county consolidation in Montana, will be a campaign to secure the adoption of the consolidation charter by the people of Silver Bow County at a special election later in the year.

The American Red Cross Is to Undertake a Great Educational Campaign for Public Health

In the *Red Cross Courier* for March 10, announcement is made by Chairman John Barton Payne of the intention of the American Red Cross to choose a Director of Health Service as soon as a suitable person can be found, and to put into effect the recommendations, published in full in that issue, of a committee of distinguished physicians, surgeons, sanitarians and public health officials.

The report recommends that the public health activities which the American Red Cross has been carrying on should be developed and coordinated into a health program of sufficient appeal to attract a wider Chapter response than has hitherto been manifest. The report says in part:

"The charter of the American Red Cross clearly lays upon it the responsibility of preventing, as well as of alleviating, the suffering created by preventable disease. Abandonment of health activities is therefore out of the question, and if health work is to be performed at all it seems to us clear that it will gain immensely in efficiency by fuller coordination and more definite emphasis.

"From the standpoint of the public health

worker and that of the practicing physician, your committee believes that there is a unique need and a unique opportunity for such a health service as the American Red Cross could render. The protection of the public health is fundamentally a governmental problem; but it is a problem which requires for its solution not only official action, but also the intelligent and active cooperation of the individual citizen. Modern wars are not waged by armies alone. The munition worker, the transport worker, the miner, the farmer, plays a part as essential as that of the soldier. The war against disease must also be a war of the whole people. Such primary requirements as water supply and waste disposal systems may be provided and quarantine regulations enforced by the governments; but the most important problems of modern public health can be solved only with the voluntary cooperation of the individual citizen.

"The object of the public health worker of the present day is to change the daily habits of life of the woman in the home and of the man at the desk and the work-bench. Such a change cannot be effected by laws, but only by the slow process of education. In recognition of this fact the public health movement in the past ten years has become more and more definitely educational in its very essence.

"It is in connection with this great educational campaign for public health that the Red Cross finds its supreme opportunity for leadership. . . .

"The development of health study classes and neighborhood health service committees should, we believe, form the basic and universal element in a comprehensive health program; and the national organization should, in our judgment, take a definite and vigorous lead in this matter by preparing outlines or organization, syllabi for lectures and conferences, plans for surveys and suggestive standards for health programs."

April 22-28 Will Be National Garden Week

With the endorsement of President Harding, the General Federation of Women's Clubs has designated April 22-28, 1923, as National Garden Week. In bringing the program for the week to the attention of the federated clubs and other cooperating organizations, Mrs. Thomas G. Winter, President of the Federation, wrote:

"Perhaps nothing could help to stabilize our minds and spirits in this very tumultuous time so much as a profound and intimate realization of the steadiness of the universe in which we live—its law, its orderliness, its magnificent long purposes and occurrences. The garden

*See article by P. L. Wills in THE AMERICAN CITY for February, 1923, page 175.

movement means a great deal more than getting a little plot of land where the child or the grown-up can raise a few sweet peas or radishes. It means that contact with the vitality and reliability and serenity of nature, of purposes and fulfillment, of human life as related to forces infinitely greater than itself. That's the reason we club women are backing Garden Week. We believe in the kind of activity that links itself with ordered purpose—that sees the day as a part of eternity."

A program of suggested talks and events for the week can be obtained from Mrs. John D. Sherman, Chairman, National Garden Week Campaign, 1734 N Street, N. W., Washington, D. C.

Tax Exemption Acts in New York and New Jersey Have Been Held Unconstitutional

On March 21, the Supreme Court of the State of New York, in a decision by Justice Tierney, declared unconstitutional Chapter 949 of the laws of 1920. That statute authorized the legislative body of a county to determine that new buildings of certain types should be exempt from taxation for local purposes during construction and for a limited period thereafter. In the decision, Justice Tierney pointed out the fact that the Legislature had not enacted a statute exempting from taxation any class or type of building throughout the state, but had authorized the legislative body of any county to exempt buildings in that county, irrespective of a like exemption in other parts of the state. For that reason, the Supreme Court holds that the law in question violates the prohibition of the constitution against passing a private or local appeal granting any person, firm or corporation an exemption from taxation on real or personal property. The decision states, however, that the Legislature might enact a general law exempting buildings of the character in question from taxation.

Corporation Counsel George P. Nicholson of New York City has announced that his office will immediately prepare papers to have the case carried to the Appellate Division (the court of last resort in New York State) at the earliest opportunity. It is estimated that in New York City alone, the valuation of new property which had been assumed to be subject to exemption under the law is nearly \$250,000,000.

The highest court in the state of New Jersey, the Court of Errors and Appeals, on March 9 affirmed a decision rendered by the Supreme Court about a year ago, in which New Jersey's tax exemption act was declared unconstitutional. This act, which had been adopted by the Legislature in 1920, exempted from taxation for a period of five years all new construction to be used for dwelling purposes. In handing down the decision, Justice Bergen ruled that the act of 1920 was unconstitutional because it created an arbitrary classification of property and offended against the organic law of the state requiring that property be assessed "under general laws and by uniform rules according to its true value."

The Trenton Times Is Stimulating Civic Service

The sum of \$500 annually is set aside by the Trenton, N. J., *Times* for the purchase of a Civic Loving Cup to be awarded to that citizen who in the course of the year has performed the most conspicuously unselfish service for the community. The awarding of the cup rests with a board representing the City Commission, the Chamber of Commerce, the Rotary, Kiwanis, Lions, Contemporary and the Symposium, Business and

Professional Women's and Teachers' Clubs. Nominations are made by citizens, and the Board of Award gives consideration to other names as well. Any man, woman or

SLUMP IN BUILDING FOLLOWS RULING ON CITY TAX EXEMPTION

Work on Homes Stops Suddenly
as Flood of Appeals for
Relief Is Received.

60,000 OWNERS AFFECTED

Many Unable to Pay Levy if
Higher Court Upholds "Un-
constitutional" Ruling.

MARKED DROP IN PERMITS

Fear Expressed Another Housing
Crisis Will Come—May Ask
Legislature to Help

The building situation was thrown
into the utmost confusion yesterday be-
cause of the decision of Supreme Court
Justice Tierney, who ruled that the tax-
exemption law was unconstitutional.
There was an immediate slump in the
number of plans filed for building in
the Bronx and Queens, and prospective
builders began to look for a change in the law.

The first reaction as reported in
the "New York Times." Later
reports show renewed activity, in
the hope that tax exemption will
be held constitutional by the
higher court

child may name any other man, woman or child, stating the reasons for desiring that person's selection. No worthy achievement is barred. Those who make the award consider moral, spiritual, physical and material service.

The award for civic service during 1922 was made on January 28, 1923, with appropriate exercises held in the Capitol Theater. The presentation of the cup to Andrew Jackson Berrien was made by Governor George S. Silzer, after an address by Edward L. Katzenbach of the Board of Award. In commenting on the award in a letter to *THE AMERICAN CITY*, Walter O. Lochner, Secretary of the Trenton Chamber of Commerce, says:

"Briefly, Mr. Berrien's civic contribution was his day-in, day-out willingness to serve the city's unfortunate and poor people by planning and arranging activities which made for their happiness. Mr. Berrien is not a wealthy man, so that his contribution was service rather than money. And the judges' recognition of service above wealth met with public approval."

Abolition of County Jails Is Urged by Ohio Committee on Penal Conditions

At a conference on prison conditions in Ohio, held at Oberlin, February 15-17, with Dr. George W. Kirchwey of New York as chairman, a permanent committee was organized under the name of the Ohio Committee on Penal Conditions. The following statement of objectives was adopted:

1. The abolition of the county jail as a place for serving sentence, and the substitution of houses of detention for those awaiting trial or held as witnesses; and the enforcement of existing laws regarding the segregation and classification of prisoners.
2. The indeterminate sentence with no minimum limit for all classes of offenders.
3. The power of the court to suspend sentence and place convicted offenders on probation shall extend to all classes of offenders.
4. The thorough mental, physical and social investigation of every person convicted of crime or delinquency, with a view to such classification and differentiated treatment as may best serve the interest of society and the individual concerned.
5. The abolition of the death penalty.
6. A system of labor which shall furnish to every inmate of penal and correctional institutions work of useful and educational character under proper working conditions and at a just wage.
7. The complete elimination of partisan politics from the administration of the penal system, and especially from the department of public welfare, and the board of pardons and paroles.

8. The complete elimination of methods of harsh discipline in the penal and correctional institutions of the state, and the substitution therefor of methods of an educational character, including such a measure of inmate self-government as may furnish training in responsibility, self-control and citizenship.

Professor H. A. Miller of Oberlin College is chairman of the permanent committee.

Milwaukee Is to Adopt a Modern System of House Numbering and Street Naming

The Common Council of Milwaukee on March 5 adopted an ordinance containing the recommendations of the local Commission on House Numbering and Street Naming, which will bring to a successful conclusion the long struggle to establish two proper base lines for the entire city of Milwaukee and the principle of 100 house numbers to the block. At present Milwaukee is handicapped by eight different base lines and four different systems of numbering, a large duplication of street names, and the designation of through streets by different names in various sections of the city. The new ordinance will not go into effect until January 1, 1925, giving business firms sufficient time to dispose of stock on hand bearing the old street and number designations.

The City Club of Milwaukee has been very active in advocacy of the new plan, which has also had the support of many other civic organizations.

The National Association of Purchasing Agents Is Studying Municipal Purchasing Methods

The recently organized Research Department of the National Association of Purchasing Agents is making a study of governmental purchasing in the various state, county and municipal units in the United States and Canada. A collection is being made of statutes, ordinances and facts on centralized purchasing, from which data of particular interest to city administrators will be made available from time to time through the columns of *THE AMERICAN CITY*. Some of this information has been found of immediate practical value in various states where centralized governmental purchasing is a live issue. Until it is published the Association will be glad to reply to requests for information addressed to its Research Department at 19 Park Place, New York City.

Cash Savings on Asphalt Streets

Municipal Asphalt Plant at Portland, Oregon, Cuts Contractors' Prices for New Construction and Maintenance

By A. L. Barbur

Commissioner of Public Works, Portland, Ore.

IN 1918 the city of Portland faced a very difficult problem. A large and rapidly increasing mileage of pavement was passing out from the contractors' responsibility, and the city was assuming the duty of maintaining the pavements, dependent entirely upon the contractors. The paving contractors, having no desire to burden themselves with the maintenance work, charged all maintenance repairs at a schedule rate for utility repairs. This schedule

high prices charged for materials, it was almost an impossibility to get any repair work done at all, and, furthermore, it became evident that the proper maintenance of the streets at the scheduled rates would be a burden entirely beyond the financial powers of the city.

Under these circumstances, the City Council decided that the only way out of the difficulty was the erection of its own repair plant. A site was leased and a small



MUNICIPAL ASPHALT PLANT, PORTLAND, ORE., SHOWING CONVENIENT LOCATION FOR WATER AND RAIL TRANSPORTATION OF MATERIALS

was based on a series of concentric circles or zones, the inner zone with a radius of $1\frac{1}{4}$ miles, the second with a radius of 2 miles, and thereafter the radius increased by increments of half-miles to the fourth and last zone. The minimum charge in the various zones for the first square yard varied from \$5 in the first or inner zone to \$9 to any point beyond the last or four-mile zone. The charge per square foot for all area in excess of one square yard is the same in all zones.

During the war, however, on account of the unprecedented labor conditions and the

plant constructed at a cost of about \$9,000. The city then assumed the duty of making its own repairs—both maintenance work on such streets as the contractors were no longer under obligations to maintain, and all public utility repairs.

In spite of the great increases in the cost of labor and material, the schedule above-mentioned, which was made in 1913, was adopted as the basis of charge for utility repairs, an attempt being made to do the maintenance work at actual cost. By actual cost is meant that due allowance was made for depreciation of the entire plant, such as

buildings, machinery and all equipment, the necessary overhead for supervision and other expense, and a fixed charge per square yard for maintenance of the pavement itself.

Saving on One Job Paid for Plant

After the repair plant had been in operation for several months, it was requisitioned by the Bureau of Parks to pave Terwilliger Boulevard, a scenic driveway under its jurisdiction, with asphaltic concrete resurfacing for a distance of about 1½ miles. This work consisted of laying 22,464 square yards of pavement 2 inches thick. The total cost of the wearing surface amounted to only \$13,972.61, making a unit price of \$.622 per square yard. At the time this work was performed, the prices asked by contractors for bitulithic surfacing ranged from \$1.25 to \$1.45 per square yard. In other words, the saving to the taxpayers on this piece of work alone was more than the total cost of the original paving plant.

Because of persistent demands from the public for lower prices, the city decided to go more deeply into the paving business. Therefore, in the spring of 1920 the city made an appropriation sufficient to erect and equip a complete bituminous paving plant on a parcel of land owned by the city and centrally located along the waterfront. The plant as illustrated has a maximum capacity of 2,000 square yards of asphaltic concrete per day, and represents

an investment of \$93,000. This plant is complete in every detail, with a dock and storage bunkers for sand and crushed rock, and is equally accessible by either rail or boat.

Since the plant was completed and active operations commenced, its success has been phenomenal. By November 30, 1921, the end of the second fiscal year, a total of 253,129.4 square yards of pavement had been laid under contract alone at a saving of \$175,904.76 under the lowest contractors' bids. This amount represents an actual saving to each and every property owner along the streets paved.

In addition to this direct saving to the property owners, the paving plant has in this three-year period of operation (from April, 1920, to November 30, 1922) earned a profit of \$40,467.93 for the General Fund, and a surplus of \$36,612.70 on the original investment of \$93,000.

Since the paving plant has been in operation, there has been a very noticeable decline in the contract prices on pavement except those on which the city engineer for good engineering reasons called for concrete pavement, thus allowing the paving plant no opportunity to compete. The immediate rebound to high prices by the contractors as soon as they were relieved from competition is in itself ample proof that the municipal paving plant has justified its existence, and is securing just and equitable prices for the property owners.



NIGHT ILLUMINATION OF BROADWAY, SARATOGA SPRINGS, N. Y.

Duoflux units with 1,000- and 250-candle-power incandescent lamps

St. Louis Water-Works Extension Assured

WITH the passage of the \$12,000,000 bond issue for additional water-works in St. Louis, on February 9, 1923, the water shortage which threatened to affect the city within five years has been definitely eliminated. The new water-works are to be located on the Missouri River, 8 miles above St. Charles and about 14 miles west of the St. Louis city limits. It is proposed to purchase some 250 acres of land along the river and in time to improve it with walks, drives, shrubbery, trees and flowers, just as are all the grounds around the present water-works station.

The works themselves will be built on the river bank, similar to the plant at the Chain of Rocks, in that there will be engine houses, shops, settling basins and filters. From the pumps, 72-inch steel pipe will be laid in the strip of land purchased for that purpose, and later this strip, 150 feet wide, may serve as a route for a wide boulevard,

paved and lined with trees. These steel mains will terminate in a 200,000,000-gallon reservoir to be built on a 52-acre tract of land now owned by the city and located on the Olive Street Road at Bonhomme Road.

Other steel mains will carry the water from the reservoir to the city limits, a distance of about five miles. The first of these mains will connect at the city limits near Manchester Avenue with the present system of cast iron pipe, now supplying the city. It is probable that this main will also eventually supply Maplewood, Webster and Kirkwood with water. Some time about 1927 it is estimated that 30,000,000 gallons of water per day will be needed to supply the southern portion of the city, and thus relieve the draft on the existing water-works. By 1940 not less than 80,000,000 gallons per day will be supplied by the Missouri River works and other steel mains terminating at the city limits.

On the Calendar of Conventions

APRIL 17-20.—BIRMINGHAM, ALA.

Tri-State Water and Light Association of the Carolinas and Georgia. Annual convention. Secretary, W. F. Stieglitz, Columbia, S. C.

APRIL 30-MAY 2.—BALTIMORE, MD.

National Conference on City Planning. Annual conference. Secretary, Flavel Shurtleff, 130 East 22nd Street, New York, N. Y.

MAY 7-11.—ATLANTA, GA.

General Federation of Women's Clubs. Mid-biennial meeting. Corresponding Secretary, Mrs. George W. Plummer, 878 North Clark Street, Chicago, Ill.

MAY 8-10.—NEW YORK, N. Y.

Chamber of Commerce of the United States of America. Annual meeting. Secretary, D. A. Skinner, Mills Building, Washington, D. C.

MAY 8-10.—CHICAGO, ILL.

National Fire Protection Association. Annual meeting. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

MAY 9-10.—BRYAN, TEX.

League of Texas Municipalities. Annual convention. Secretary, Frank M. Stewart, Government Research Division, Bureau of Extension, University of Texas, Austin, Tex.

MAY 16-23.—WASHINGTON, D. C.

National Conference of Social Work. 50th Anniversary Session. Secretary, William H. Parker, 25 East 9th Street, Cincinnati, Ohio.

MAY 21-25.—DETROIT, MICH.

American Water Works Association. Annual convention. Secretary, J. M. Diven, 153 West 71st Street, New York, N. Y.

MAY 21-25.—MEMPHIS, TENN.

Southern Commercial Secretaries Association. Annual convention. Secretary, A. T. Felt, Alexandria, La.

JUNE 4-8.—NEW YORK, N. Y.

National Electric Light Association. Annual convention. Executive Manager, W. H. Aylesworth, 29 West 39th Street, New York, N. Y.

JUNE 11-14.—HAMILTON, ONT.

Canadian Good Roads Association. Annual convention. Secretary, George A. McNamee, 909 New Birks Building, Montreal, Quebec.

JUNE 11-15.—BUFFALO, N. Y.

International Association of Chiefs of Police. Annual convention. Secretary, George Black, Chief of Police, Wilmington, Del.

JUNE 12-14.—BUFFALO, N. Y.

Conference of Mayors and Other City Officials of the State of New York. Annual convention. Secretary, William P. Capes, 25 Washington Avenue, Albany, N. Y.

JUNE 18-21.—WICHITA FALLS, TEX.

Southwest Water Works Association. Annual convention. Secretary, R. D. Morgan, Mexia, Tex.

JUNE 19-21.—MILWAUKEE, WIS.

National Association of Comptrollers and Accounting Officers. Annual convention. Secretary, Mark M. Foote, Comptroller's Office, Chicago, Ill.

JUNE 20-21.—FARIBAULT, MINN.

League of Minnesota Municipalities. Annual convention. Executive Secretary, Morris B. Lambie, The Municipal Reference Bureau, University of Minnesota, Minneapolis, Minn.

OCTOBER 23-26.—RICHMOND, VA.

International Association of Fire Engineers. Annual convention. Secretary, James J. Mulcabe, City Hall, Yonkers, N. Y.

OCTOBER 29-31.—CINCINNATI, OHIO

National Association of Commercial Organization Secretaries. Annual meeting. Secretary-Treasurer, Joseph F. Leopold, 301 Crocker Building, Des Moines, Iowa.

NOVEMBER 12-16.—MEMPHIS, TENN.

American Society for Municipal Improvements. Annual convention. Secretary, Charles Carroll Brown, P. O. Box, 234, St. Petersburg, Fla.

NOVEMBER 13-15.—WASHINGTON, D. C.

City Managers' Association. Annual convention. Secretary, John G. Stutz, Lawrence, Kans.

Chamber of Commerce Activities in Public Affairs

Naugatuck to Have an Athletic and Recreational Park

NAUGATUCK, CONN.—Over \$68,000 was raised by public subscriptions in Naugatuck from January 20 to 26 in a campaign conducted by the Chamber of Commerce for an athletic and recreational park. This amount will be sufficient for the purchase of the land and for the carrying out of the major portion of the project. Each subscriber is given 14 months in which to pay his subscription.

Two important features of the campaign were the folder headed "For Every Citizen of Naugatuck," and the campaign button, herewith reproduced. The inside of the

folder made a single quarto page, at the top of which was the proposed plan, as illustrated. All its features were noted, and below, across the page, was the display head, "An Athletic and Recreational Park for Every Citizen of Naugatuck!" followed by these statements:

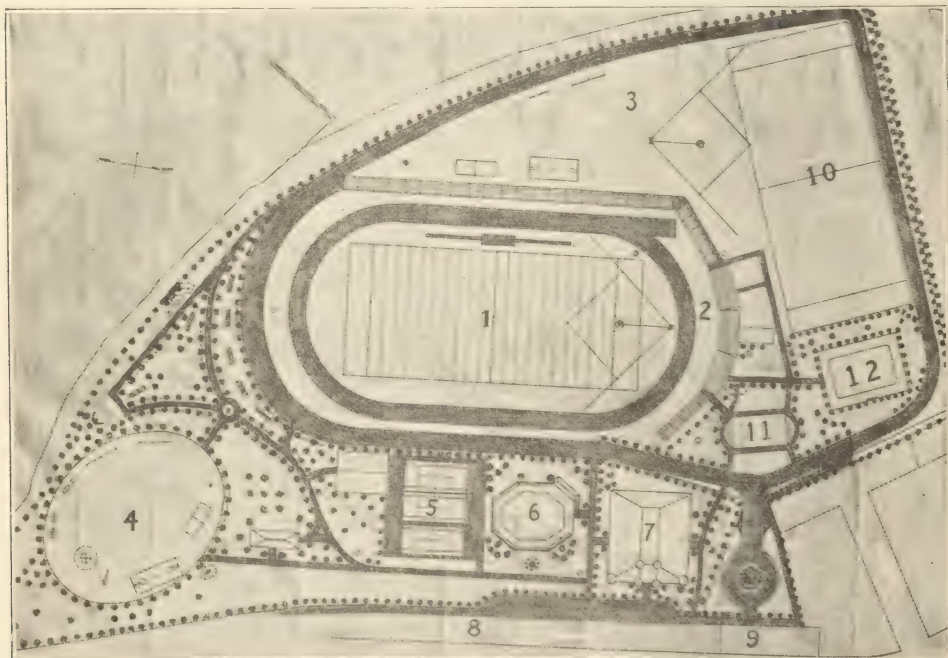
No community in Connecticut is a greater lover of athletics than Naugatuck.

Our football and basketball teams are second to none in the state.

Yet Naugatuck has no Athletic Park adequate to her needs.

Proper facilities for rest and recreation are vital to the development of a busy community.

This Park can be developed for much less money NOW than later.



PLAN OF NAUGATUCK'S NEW ATHLETIC AND RECREATION PARK

- | | | | |
|---------------------------------------|------------------------------|---|--------------------------------------|
| 1. Main field for exhibition games | 4. Girls' playground | 7. Auditorium for dancing, roller skating, concerts, etc. | 10. Practise field and parking space |
| 2. Grandstand | 5. Tennis courts | 8. Trolley landing | 11. Men's Quoit Club |
| 3. Boys' playground and No. 2 diamond | 6. Open pavilion for dancing | 9. Main entrance and driveway | 12. Swimming pool |

A present unsightly portion of our community would be transformed into a most attractive entrance.

The measure of a city's pride is in her public parks.

Next was stated

THE PROPOSITION

It is proposed to secure the "Culver Meadow" property, "Firemen's Field" and Hotchkiss property, all on South Main Street, and consisting of about seventeen and one-half acres, for a Recreational and Athletic Park. About three acres at the north end of this tract would be available for NEW INDUSTRIES. It is proposed to develop the remaining fourteen and one-half acres into a Recreational and Athletic Park second to none in communities the size of Naugatuck.

The park plan, as shown in the cut above, is a possible development of this tract. What can be done depends entirely upon the amount of funds available. Our park when completed will need such features as a football and baseball field, and grandstand with seating capacity of around fifteen hundred, augmented by knockdown bleachers, seating perhaps five thousand more. There should be an auxiliary athletic field, a girls' playground, a boys' playground, tennis courts, shower baths and dressing rooms, dancing pavilion, picnic grounds, etc. And if funds permit, such features can be added as a swimming pool and an auditorium for basket ball and roller skating. If found practical, an ice skating field would be arranged for winter use.

THIS IS DOING THE JOB THE WAY NAUGATUCK ALWAYS DOES IT

In order that this park may always be of the greatest service to all the citizens and properly cared for, it is the plan of the Board of Directors of the Chamber of Commerce to form a separate organization, free from any conflicting political or private interests, to have charge of the development and management of the park. A board of nine trustees has been suggested, each trustee to be appointed for a term of three years, and to serve under the rotary system, so that there will be three retiring and three new trustees each year.

We still have on hand about three thousand of the unique buttons which were ordered for this successful campaign, and we should be glad to dispose of these at a reasonable price to any organization that would find them of service.

LOYD L. ANDERSON,
Secretary, Naugatuck Chamber of Commerce.



When Attending The New York Convention

of the Chamber of Commerce of the United States, visiting secretaries and other delegates are invited to make their business headquarters at the new offices of THE AMERICAN CITY, 443 Fourth Avenue (cor. of 30th Street).

Items from Berkeley's Effective Program

BERKELEY, CALIF.—The Berkeley Chamber of Commerce has recently initiated and assisted in carrying to an overwhelming victory a city manager amendment to the city charter. The measure was carried by a vote of almost two to one.

A comprehensive business and industrial survey of the city has just been completed.

We have formed an organization for reducing mortality rates and have challenged the 63 cities in our class to a year's contest in mortality reduction.

Our Arts and Crafts Committee has established a shop where the work of one hundred craftsmen and artists resident in Berkeley is exhibited and sold, thus helping to establish Berkeley as an important art center.

The Chamber is conducting a series of chamber music concerts by resident artists, with an average attendance of 300 to 400 every other Saturday evening.

Work is under way for the third annual Chamber of Commerce Fair.

We are also working toward a comprehensive city plan.

CHARLES KEELER,
Managing Director, Berkeley Chamber of Commerce.

A Tree-planting Holiday

CHICO, CALIF.—Over two hundred American elm trees and seventy-five pistachio trees were planted along the highway between Chico and the Durham State Land Settlement on Washington's Birthday, 1923, through the efforts of the Chico Chamber of Commerce. More than one hundred and fifty citizens of Chico and Durham turned out with picks and shovels, and by noon the entire job was completed, the trees were planted and tied, and guards were placed around all the trees. The success of the day was greatly furthered by the splendid cooperation of the members of the Business Women's Club of Chico, who prepared and served a hearty luncheon to the workers.

The results of that day of intensive work will serve to benefit generations of citizens, tourists and wayfarers and to testify to the efficacy of cooperative effort.

THEODORE GRADY, JR.,
Secretary, Chico Chamber of Commerce.



Modernize Your Equipment

The "Caterpillar's" field of usefulness is by no means limited to road making. There is a "Caterpillar"* of size and capacity for every power need. On farm or ranch, in the mining, oil and lumber industries, for snow removal and other civic work—wherever power and endurance are at a premium, the "Caterpillar"* has no real competitor.*

Are the dirt and gravel streets and alleys of your town grade and maintained as they should be—or are they muddy and full of ruts? Now is the time to put the "Caterpillar"* to work. Your town doesn't own a "Caterpillar"*? It should. R. H. Kimball, Supt. of Paving, Colorado Springs, says "In two years our "Caterpillar"* already has done sufficient work to wipe off entirely its first cost, and we expect it to give more years of satisfactory service." Progressive cities and towns all over the country are using "Caterpillars"* exclusively because no other machine can provide such economical power for grading, leveling, maintenance, scarifying, hauling materials or garbage disposal trains, for snow removal, dirt moving, park improvement, and other public works. Fremont, Neb.; Brookline, Mass.; New York; Ironwood, Mich.; San Antonio; Chicago; Spokane; Minneapolis; Portland, Me.; Dallas; Gloversville, N. Y.; Terra Haute; Dodge City, Kan.; Duluth; Laramie, Wyo., are typical of the hundreds of "Caterpillar"*-equipped municipalities. As a public official you are interested in modernizing the road-making equipment of your community. Our booklet, "Caterpillar"* Performance, will interest you. Send for copy.

** There is but one "Caterpillar"—Holt builds it.*

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Reg. U.S. Pat. Off.

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STOCKTON, CALIF.

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Indianapolis, Ind.
Canadian Holt Company, Ltd.,
Montreal.

Working to Make Chicago Safe

CHICAGO, ILL.—Business executives are more and more appreciating that prevention is of greater importance than cure. Upon this premise is based the plan of the Chicago Safety Council, organized in 1920, in cooperation with the National Safety Council, as a department of the Chicago Association of Commerce. Encouraged and inspired by two years of successful, result-getting activities, the Council has now undertaken an enlargement of its operations, and 1923 promises to witness an improvement of the first order in Chicago's accident and fire record.

The Executive Committee of the Council has definitely apportioned the expenditures of its budget of \$100,000 to cover current year operations. This committee is composed of representative business executives and experts in charge of safety and fire prevention programs for some of Chicago's largest industrial enterprises, and recognizes that the Safety Council provides for the great community subject to its influence a type of organization identical to that in effect with the leading industries of the country. Fires and accidents caused an economic loss in this district in 1922 estimated at upwards of \$25,000,000. Here is

the Safety Council program for 1923 to reduce this loss:

1. Enforce the Law.—Disregard of vehicle laws must be stopped. Law enforcement agencies of city and state must be supported by public sentiment. Fifty per cent of arrests to-day are not prosecuted. By making favoritism impossible, cooperating with the police and courts in the performance of public duty and promoting respect for the law among all classes, the Safety Council can do a great work to make life safe in Chicago's streets.

2. Vigilance.—A vigilance organization will be formed of 500 picked men who will report disregard of laws and general carelessness by motorists and others. Specific action will be taken on each report. The arrangement has the support of the Chief of Police, who will take summary action as advisable.

3. Teach Safety in Schools.—A half-million school children will be trained this year in safety and fire prevention. This method teaches respect for the law as well as the practise of care. Parents will be interested through the children. Junior Safety Councils will be formed and the plan extended throughout the Chicago industrial area.

4. Train Industrial Workers.—The Safety Council will operate three safety supervisors' schools and three foremen's instruction courses for industrial workers; two schools for chauffeurs and truck-drivers, and an instruction course in first aid, health and sanitation.

5. Safe Drivers' Club.—Fifty thousand motorists will be organized in a Safety Club, pledged to obey the law, drive carefully and practise courtesy of the road, teaching safety by example and precept to all motorists.

6. Safety Week.—A campaign, designed to impress the public with the fact that 75 per cent of accidents are preventable by compliance with the law and the exercise of care, will be operated on an intensive, high-powered basis.

7. Children.—The Juvenile Safety Committee will conduct extensive activities in the playgrounds and parks and organize the sundry juvenile bodies of Chicago to combat the accident and fire situation.

8. Prevent Fires.—An annual Fire Prevention Week will be operated in connection with the anniversary of the Chicago Fire of October 9, 1871; an instruction course will be given in fire prevention.

9. Public Instruction.—One hundred and fifty safety bulletin boards will be installed and currently maintained at filling stations, garages and other public places as a means of continuously keeping the accident problem before the public.

10. District Safety Councils.—Intensive safety activities will be organized and directed in ten or more districts of Chicago and the adjoining highly developed communities.

HARRY J. BELL,

Secretary, The Chicago Safety Council.

A Community Orchestra

SPRINGFIELD, ILL.—For two years the Springfield Chamber of Commerce, through a special committee, fostered and assisted the Springfield Civic Orchestra, until it had established itself in the hearts of the citizens as one of the most valuable adjuncts to community life. Last December the Chamber gave a dinner in honor of the orchestra—which has grown to nearly 50 members—and invited the public to attend. The orchestra was present in a body and played several fine numbers. At the close of the musical program, the chairman of the Chamber of Commerce special committee moved that a Civic Orchestra Association should be formed that night and that all music lovers and citizens interested in the



CITY COLLECTOR'S OFFICE
CITY OF CHICAGO
ROOM 107, CITY HALL

AGE ZYLSTRA
CITY COLLECTOR
ALEXANDER C. RANKIN
CITY COLLECTOR
TOLSONER HAN DAY

SAFE DRIVERS

TO CHICAGO MOTORISTS:

1. As the City Executive charged with the issuance of Vehicle Licenses for Chicago, I bespeak the active CO-OPERATION of all MOTORISTS in our efforts to MINIMIZE DEATH and INJURY due to the operation of motor vehicles.

2. EXPERIENCE DEMONSTRATES beyond question that 90% of these unfortunate CASUALTIES ARE PREVENTABLE by

- COMPLIANCE with the LAW, especially with respect to SPEED.
- EXERCISE of CARE by all concerned, including pedestrians.
- LITERAL COMPLIANCE with the ADMONITION to STOP, LOOK and LISTEN at ALL railroad CROSSINGS.
- PRACTICE of ordinary COURTESY of the ROAD.
- EXHIBITING TOWARD OTHER MOTORISTS and PEDESTRIANS the same REGARD as you EXPECT THEM to EXHIBIT TOWARDS YOU.
- REMEMBERING that the CHILD cannot be expected to exercise the same JUDGMENT as an adult, when CROSSING the HIGHWAY or PLAYING in the STREET - YOU MUST THINK FOR IT.

3. CASUALTIES due to AUTOMOBILES have now reached ALARMING proportions and it is to the interest of the motorist as well as the great public of Chicago that an IMPROVEMENT be EFFECTED IMMEDIATELY.

4. In Chicago and Cook County in 1922, 736 MEN, WOMEN and CHILDREN were KILLED in this manner and 248 of this number were CHILDREN under 16 years of age.

5. The Police Department, public authorities generally, the Chicago Safety Council and other civic agencies are working earnestly to improve the record in Chicago and its environs but, notwithstanding this intense effort, the TOLL of the AUTOMOBILE CONTINUES to INCREASE.

6. I propose, therefore, as a measure of co-operation with all agencies concerned in this extremely important problem, THAT EVERY CHICAGO MOTORIST RESOLVE that in 1923 he will be a SAFE DRIVER, profit by the advice herein, study the MOTOR VEHICLE LAWS of this City and State and thus DO his SHARE in conserving the LIVES and LIMBS of our PEOPLE.

7. Surely YOUR LIFE and the LIVES of THOSE WHO RIDE WITH YOU are worth the small effort and time required to WARRANT SAFE DRIVING under all circumstances!

8. SAFETY FIRST is HUMANITARIAN—AND IT PAYS!

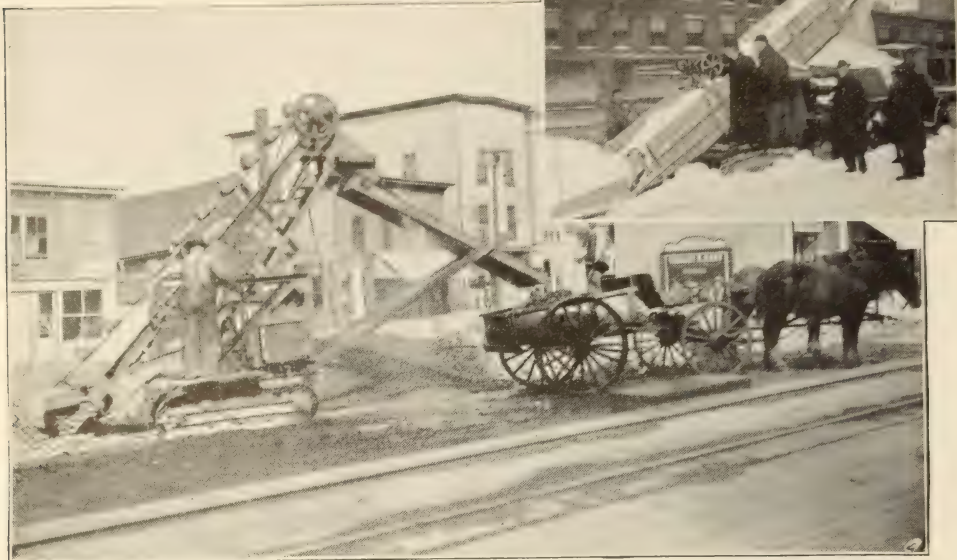
AGE ZYLSTRA,

City Collector.

Chicago, Jan. 2, 1923.

THIS LETTER IS DISTRIBUTED WITH ALL
TAX LICENSES IN CHICAGO

Below, Farber-Greene Loader at work in Old Town, Maine.
Above, Barber-Greene Municipal Loader loading snow.



How Old Town Handles Crushed Rock

In summer the Municipal Loader replaces a gang with one man—in winter it replaces 60 snow shovelers

IN the fall of 1921, the city of Old Town, Maine, stored a great deal of crushed stone. By spring so much sand, dust and leaves were mixed with it that it wasn't fit for use. But they had a Barber-Greene Loader. They put a $\frac{1}{2}$ inch screen, 10 feet long, under its spout. Then they turned a $\frac{3}{4}$ inch stream of water across the chute.

The crushed rock was washed clean by the time it got into the trucks.

More important to most cities is the fact that the Barber-Greene Loader replaces a gang of shovelers with one man—so that the stone supply, instead of being a drag on the work, becomes a pace-maker.

In Bartlesville, Okla., a Barber-Greene was used to load stone into horse carts on city paving work and did away with all stone shoveling at the storage piles.

In Oak Park, Illinois, Barber-Greenes in 1922 were so effective in loading sand and stone that not a single shoveler was used, not even for cleaning up.

Even in Tokyo, Japan, where labor is cheap, the municipality uses a Barber-Greene to save money and speed the work. The new Barber-Greene Municipal Loader has the additional advantage of having a removable boom so it can be converted into a snow loader in winter.

Chicago says that in handling snow the Barber-Greene replaces 60 shovelers; Albany says that it is over 30 times as fast as hand labor; Boston "L" officials say that for them it is equivalent to 150 men. Because of the threatened scarcity and high cost of shovel labor the Municipal Loader will be especially popular this year. Send now for details, prices, and performance records.

BARBER-GREENE COMPANY—Representatives in 33 Cities—515 W. Park Avenue, Aurora, Illinois

BARBER GREENE

Portable Belt Conveyors Automatic Disc Feed of the B-G Loader Self Feeding Bucket Loaders

upbuilding of the community should be invited to join. Membership dues were fixed at \$5 per season, each membership entitling the holder to two season tickets to the concerts of the orchestra.

The membership of this new organization has grown to 600 and is still going up. At the first concert after the formation of the Association, 1,500 people were in attendance, proving that the orchestra has fully established itself in the city of Springfield.

C. E. JENKS,

Secretary, Springfield Chamber of Commerce.

Chamber Puts Trolley Across the Thames

NEW LONDON, CONN.—A new highway bridge was recently opened across the wide Thames River, connecting New London and its territory with eastern New England. For some time the receiver of a defunct and bankrupt trolley system that operated a trolley line to the river's edge, where it connected with a toll ferry, had wished to operate his trolley across the bridge and into New London—a plan that would unquestionably be profitable. The courts would not grant a franchise for this line unless there was sufficient financial assurance as to the reliability of the enterprise.

The New London Chamber of Commerce then went into the trolley business. A committee of the Chamber agreed to obligate the Chamber to underwrite the amount necessary to satisfy the court. This committee then went out among the members and raised in subscriptions approximately \$20,000. The community now has a new and successful avenue of transportation across the river, direct into the business center of the city.

A formal opening ceremony was held by the Chamber, dedicating the new trolley. The Mayors and the Town Councils of the cities on both sides of the river met in the middle of the bridge, there shook hands and pledged themselves to renewed efforts to help each other and their respective communities to be better, bigger and busier in every way. The first two days of the celebration were devoted to a big "Suburban Trading Day," in which some 200 merchants participated under the direction of the Chamber.

As far as we know, this is the first time

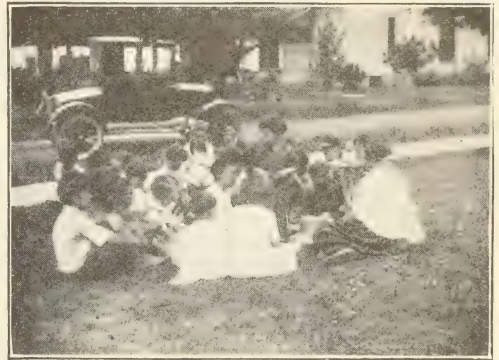
that a chamber of commerce has gone into the trolley business and made a success of the venture.

JAMES G. HAMMOND,

Manager, New London Chamber of Commerce.

Playgrounds Equipped and Supervised

FINDLAY, OHIO.—The children of Findlay were provided with equipped and supervised playgrounds last summer by the Playgrounds Committee of the Chamber of Commerce. Eleven prominent and interested ladies volunteered in this work. They raised the funds to provide playground equipment at the larger and more centrally located schools and secured also the services of two supervisors. In addition to this paid supervision, the ladies spent much of their time in the playground work, mingling with the children and teaching games.



The story-telling class, as illustrated, proved popular with the children and their mothers. Each of the committee ladies helped in this work, leaving the more strenuous exercises to the paid supervisors.

Over 1,200 children of Findlay were directly served by the playground movement. The mothers always felt safe in sending them to the playgrounds, knowing that they would be out of mischief and out of danger. The average daily attendance at the Lincoln School playground alone was 187.

O. O. McLEISH,

Managing Secretary, Findlay Chamber of Commerce.

How Is It in Your Town?

Some live in a town to live;
Some live in a town to die;
But why permit those there to live
Who permit their town to die?

BEN H. BUSMANN.

MONARCH

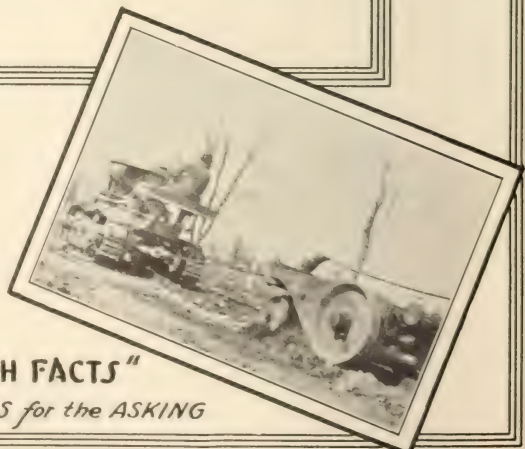
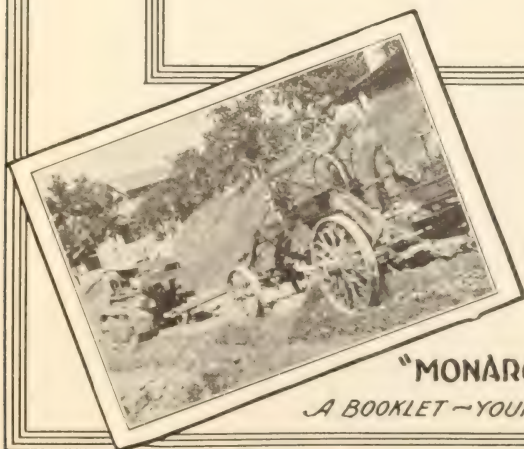
THE MOST DEPENDABLE CRAWLER TRACTOR

A PAYING INVESTMENT

Contractors and municipal departments having large dirt-moving projects in prospect should investigate Monarch industrial tractors which have been the means of increasing the profits or saving taxpayers' money on many grading and hauling jobs. This super-tractor is built to stand the heaviest demands made upon it 365 days in the year. Simplicity of construction, accessibility and high grade material are Monarch qualities.

Let us send you the story of the trip of a stock Monarch Industrial Tractor from Watertown, Wisc., to New Orleans, La. This story with "Monarch Facts" will demonstrate the dependability of this tractor which has increased profits on many large road jobs and is an ideal machine for opening roads in winter.

MONARCH TRACTORS INC
WATERTOWN WISCONSIN



"MONARCH FACTS"

A BOOKLET—YOURS for the ASKING

Financing Child Welfare Movements

By Henry S. Curtis, Ph. D.

WHAT more important work can any city undertake than to make it the best possible place for the rearing of children! We now know what is necessary to save the lives of children. We have reduced our infant death rate from 140 to 85 per thousand in the last two decades, and we might easily run this down to 35 or 40 if we would but put into practise what we already know about child hygiene. We could also run our rate of juvenile delinquency down to a quarter or a third of what it now is, if we would undertake a wide program of community welfare. Public morality is purchasable if the city is willing to pay the price.

But whenever anything of this sort is discussed, someone always raises objection to any increase in taxes. To carry out a comprehensive program would cost America the price of one or possibly two battleships. Many communities have worked for a low tax rate in the feeling that a low tax rate was desirable, and that thereby they made the city a cheaper place to live in. Both of these points of view are, I think, a mistake. I have never yet heard of a man who boasted of the small allowance he gave his wife to keep house on, because it is realized that if the wife has only a small allowance, the house will not be as well kept as it would be if she had more. The same is true of our municipal housekeeping. We cannot buy as much education for ten thousand dollars, as we can for twenty thousand dollars, nor as much street lighting, or paving, or anything else that makes an up-to-date city. The city that boasts of a low tax rate is always a Nineteenth Century city instead of a Twentieth Century city.

If we look back two hundred years, we find that there were then no public schools, no fire departments, no police departments, no park departments, or dozens of other departments which are now found in our city governments. All these new movements have increased the value of property and made the city more attractive as a place of residence. They have added also somewhat to the tax rate. But the amount we pay in taxes is always a small propor-

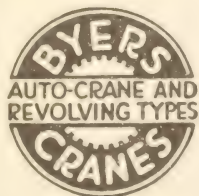
tion of our expenditures, and in any well-governed city it reduces our private expenditures by more than its sum. If we should wish to reduce our tax rate as much as possible, the best thing for us to do would be to drop our public schools. This would cut our taxes in two, or perhaps divide them by three, but it would be much more expensive to send our children to private schools than to public schools. While our taxes would be less, the city would be more expensive as a place of residence. It is believed that this is true of most movements for child welfare. They add much to the happiness and efficiency and morality of child life. They make the city more attractive as a place of residence; and they take from private expenditures more than their actual sum. Under existing circumstances America must solve this problem of child welfare not merely for herself, but for the world.

Several notable experiments in this field are now being carried on. Three years ago the city of Framingham, Mass., received an appropriation of \$10,000 for a series of years from the Metropolitan Life Insurance Company, in order to eliminate tuberculosis from the city. In the three years since this experiment was started, it has cut the death rate from tuberculosis nearly in two and at the same time run the rate of infant mortality (children dying during their first year) down to 61 per 1,000. There is now being carried on in the city of Mansfield, Ohio, an experiment of the utmost promise. This is being conducted by the National Child Health Council, in order to work out model conditions in child health. The Red Cross has furnished \$200,000 for this experiment, and the city is giving full cooperation. The Commonwealth Foundation has set aside an annual appropriation of \$230,000 for a child-welfare demonstration in three cities in the middle west. The Milbank Foundation has appropriated \$400,000 annually for similar demonstrations. The world will watch these demonstrations with great interest. Whatever practical methods are evolved are sure to find their way everywhere.



Start It Handling Any Loose Material --Then Watch Things Begin to Move!

TRUCKCRANE'S long, nimble boom can make the complete round trip—in empty and back loaded—every 20 to 30 seconds; and the special Byers Bucket takes a liberal half-yard at every grab. That means an empty gondola and a mounting stockpile at a rate you may have never thought possible!



Truckrane is a portable crane of powerful, sturdy construction, mounted on a motor chassis. We furnish the crane, you furnish the truck—any truck, second-hand or new, of 5-tons' capacity or greater, measuring 9 feet 6 inches or more from back of driver's seat to center of rear axle.

Truckrane is easy to buy, handy to operate and profitable to use. Interesting literature gladly sent you.

Sales Agencies Everywhere

THE BYERS MACHINE COMPANY

165 Sycamore Street,

Ravenna, Ohio

TruckKranE

A program of child welfare represents a fundamental interest of all the people. If they will stand together, it can be carried out in almost any community. In serving the community in this way, parents are not merely doing their duty as citizens, but they

are also improving the conditions under which their children are to live, and furnishing them a living example in good citizenship. Child welfare is the one interest in which it should be possible to unite a community and give it a soul.

What Is the Matter with the Carnival?

THE recently published Proceedings of the 1922 Convention of the National Association of Amusement Parks contains a paper by Judge Charles A. Wilson of Louisville, Ky., which is of special interest in connection with the campaign now being waged by many civic bodies against low-grade traveling carnivals. Judge Wilson's reply to the query, "What is the matter with the carnival?" might almost be summarized in the one word "Everything." To quote, in part:

"It appears from the information gleaned throughout the country, and upon the testimony of the daily press, carnivals as a rule have assumed to defy public opinion, pander to the lowest men, and violate all the laws against gambling.

"The Chamber of Commerce of North Chicago, and the Chamber of Commerce of Decatur, Ill., are to lead a state-wide fight against carnivals, claiming they leave a trail of filth and woe; while in an Ohio city an ordinance is being prepared to prohibit carnivals because they promote brawls and disturbances of various kinds. In San Antonio, Texas, the women have taken up arms against carnivals, resulting in the appointment of a censor to prevent immoral carnival shows. In Georgetown, Ky., an ordinance has been passed prohibiting any carnival company from operating in that city or within half a mile thereof; while in Bristol, Tenn., Rotary and other civic clubs, together with the Retail Merchants' Association, have denounced the carnivals as exerting a very bad influence on the population and robbing a class of citizens of money badly needed by them. Charlotte, N. C., has placed a ban on carnivals or midways. At Birmingham, business men, nauseated by the conduct of gambling carnivals, insist upon an ordinance making it impossible for carnivals to operate there. The *Minneapolis Journal* in-

sists carnivals should be shut out of that city, not only because they provide a low grade of amusements, and usually bring sure-thing gambling schemes, but the worst is they are traveling focuses of disease, especially venereal disease.

"The progressive *Cincinnati Post* says 'there is very little to be said in favor of the carnival under most favorable circumstances. The Marion, Ind., *Leader-Tribune* says that the carnival takes money from those who can little afford to lose; that a carnival cannot live without games of chance. The Gallespie, Ill., *News* says, 'If there is one thing Gallespie can do without and keep its health and happiness, it is a carnival. What excuse these shows have for traveling over the country is a mystery. * * * They have long outlived their usefulness.'"

Following the reading of Judge Wilson's paper a resolution was passed condemning certain practises which in the past have been accredited to some outdoor amusements, and placing the National Association of Amusement Parks on record as absolutely opposed to the following in any parks associated with that organization:

1. Gambling for money in any form
2. Wheels or other apparatus with crooked or unfair attachments
3. Hoochie-Koochie dance shows
4. Forty-Nine Camps, where hired women dance with patrons
5. Any blow-off or behind-the-curtain show for men
6. Any obscene or suggestive shows or exhibition
7. Any unsafe or improperly constructed ride or apparatus
8. Unclean, immoral or disreputable employees in any exhibition or on the grounds

The Ontario Municipal Association Has a Woman President

A new step was taken by the Ontario Municipal Association at its last convention by the election of Miss Mary Grant as President. Miss Grant took over the work of her father, James Grant, as Clerk and Treasurer of London Township, Ont., when

he was taken ill in 1900, and also his work as Treasurer of the London Mutual Fire Insurance Company, and acted in both capacities until his death in 1921. She is experienced in welfare work and represents the township on the Chamber of Commerce.



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A typical Tarvia Road, 77th South Street, Salt Lake County, Utah.



Carthage-Antwerp Road, Jefferson County, N. Y., another Tarvia Road.



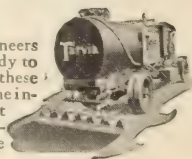
Flourtown Road, Plymouth Township, Montgomery County, Pa. Treated with Tarvia.

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The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing
Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

The Demolition of Dilapidated Buildings

AN Idaho district judge has sustained the right of the city of Lewiston to compel removal of dilapidated buildings, thereby drawing attention to important legal rules concerning municipal power in cases of this kind. Decisions of courts of last resort throughout the country appear to sustain the following principles laid down by the judge in this case:

"Municipal corporations are usually given power to define, regulate and abate nuisances within their respective limits; and in this case the power has been given to the city of Lewiston. There is no precise and practical definition of the word 'nuisance' in this connection. Some things are in their nature nuisances and are so recognized by the law. Other things are of such a character that in their nature they may be nuisances but as to which honest differences of opinion may exist among men of impartial minds as to whether they are actually nuisances. Another class are those things which in their nature are not in themselves nuisances but which may become such by reason of their locality, surroundings, or the manner in which they are conducted.

"A municipal corporation has not power to declare conclusively such a thing to be a nuisance, but can only declare such of them to be nuisances as are in fact so.

"It is generally conceded that the legislature may lawfully delegate to municipal corporations to be exercised within their corporate boundaries the power to declare what shall constitute a nuisance and to prevent the same, and ordinances adopted pursuant thereto are usually sustained. And where a thing may or may not be a nuisance, depending on its location, management or use, and the conditions existing in the municipality, thus requiring judgment and discretion in determining the matter, the determination of the question by the municipality is held to be conclusive on the courts. But the mere grant of power to the municipality does not deprive the courts of their power to review its determinations. All ordinances must be reasonable and the powers therein must not be exercised arbitrarily or with discrimination."

The leading decisions of courts of last resort have maintained that municipalities may not arbitrarily order the removal of private buildings; that such orders must rest on a reasonable exercise of the police power to safeguard the public health and safety; that they cannot find support in purely esthetic considerations.

"The absence of beauty in architecture will not constitute a structure a nuisance," declared the Texas Court of Civil Appeals in the comparatively recent case of *Shamburger vs. Scheurer*, 198 Southwestern Reporter, 1069.

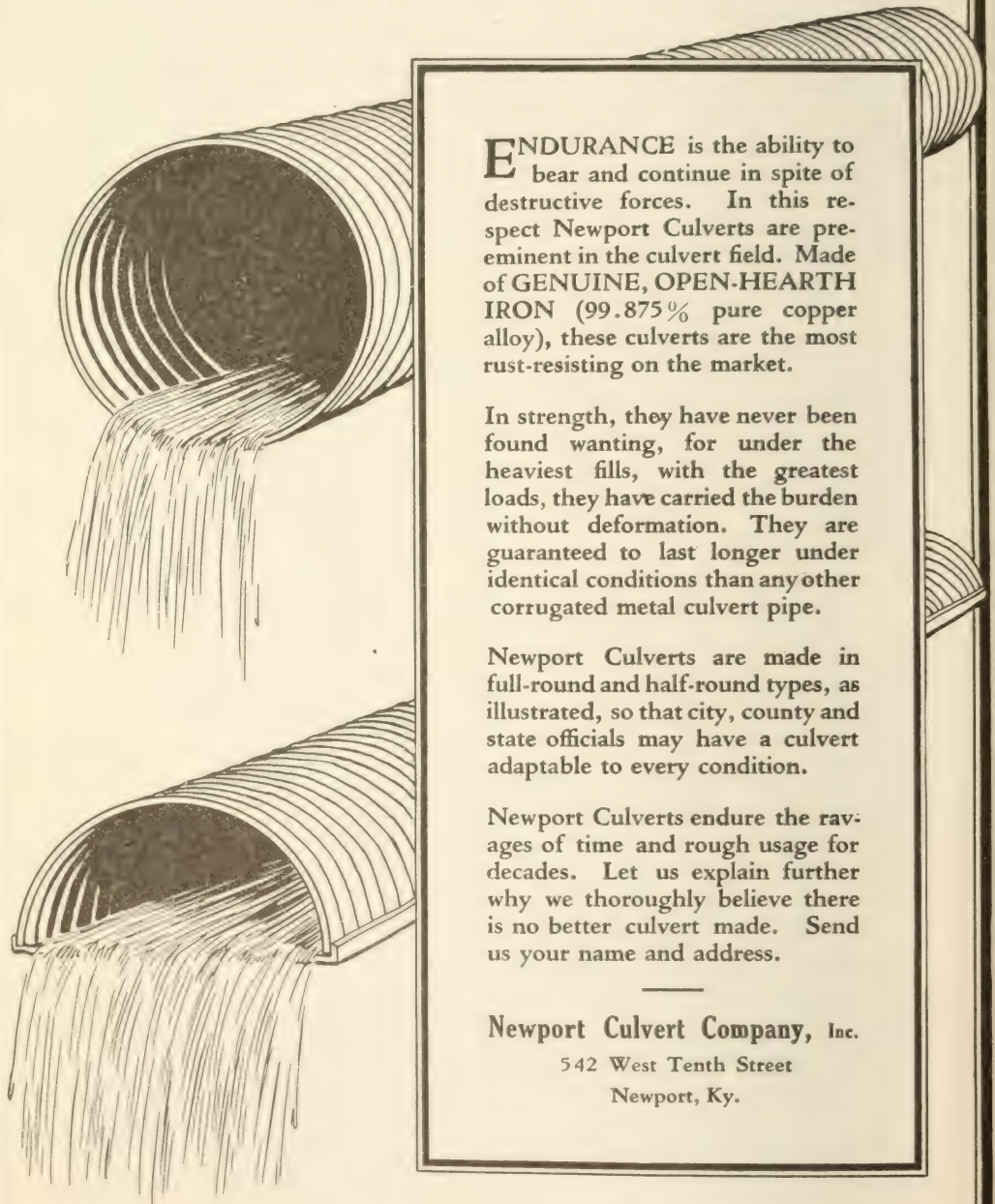
And in the case of *Kilts vs. Supervisors of Kent County*, 162 Mich. 646, the Michigan Supreme Court said:

"We are of the opinion that a nuisance involves, not only a defect, but threatened or impending danger to the public, or, if a private nuisance, to the property rights or health of persons sustaining peculiar relations to the same, and that the doctrine should be confined to such cases."

In the case of *Ferguson vs. City of Selma*, 43 Ala. 398, complainant unsuccessfully sought to enjoin defendant's officials from executing an order for the removal of dilapidated and unsanitary houses owned by him. Affirming a decree of a chancellor dismissing the suit, the Alabama Supreme Court said in part:

"The proofs show that the tenements mentioned in the bill were two old and almost worthless houses, filthy and crowded with filthy tenants, and that they were injurious to the health and comfort of the neighborhood, and had been occupied by patients afflicted with the smallpox, and were in an improving and flourishing part of the city, and that the owner was able to repair and improve them, but failed to do so. There was no proof showing what the rent was worth, except by implication or con-

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jecture. And the tenements had been condemned as a nuisance by the Board of Health of said city of Selma. There was some proof, on the part of complainant, that the houses had been cleaned and whitewashed when the witnesses examined them, but none that they might not still be injurious to the health and comfort of the people of the vicinity in which they were located.

"It is, no doubt, a very serious and important duty of the corporate authorities of a city, in the latitude of Selma, to guard the health and comfort of its people, and we would interfere with very great hesitancy with the prudent discharge of this necessary duty."

But in the much later case of *Radney vs. Town of Ashland*, 75 Southern Reporter, 25, the same Court shows that a building must be clearly a nuisance before its removal may be enforced. There the Alabama Court says:

"A vast majority of the houses in this section of the country are built of pine, and a large percentage of them are more or less old, and 'somewhat dilapidated.' Reason and sound policy concur with judicial opinion in denying that such buildings, even in towns and cities, are *per se* nuisances. *Baumgartner v. Hasty*, 100 Ind. 575, 50 Am. Re. 830; *City of New Orleans v. Lagasse*, 114 La. 1055, 38 South. 828; 2 Wood on Nuisances (3d Ed.) sec. 746.

"Nor does the use of such a building for the carrying on of the lawful business of a livery and feed stable, or an automobile garage, with the incidental storage of feed stuffs and gasoline, constitute a nuisance *per se*, although its maintenance may increase the risk of fire to neighboring houses. *Harris v. Randolph Lumber Co.*, 175 Ala. 148, 57 South. 453; *Rouse v. Martin*, 75 Ala. 510, 51 Am. Rep. 463; *Duncan v. Hayes*, 22 N. J. Eq. 25; 1 Wood on Nuisances (3d Ed.) sec. 148. See, also, *Ray v. Lynes*, 10 Ala. 63.

"We think the proper test of a nuisance in such cases is stated by Mr. Wood in the text just above cited as follows:

"'In order to render a building a nuisance, by reason of the exposure of other buildings to danger from fire, the hazardous character of the business must be unmistakable, the danger imminent, and the use of such an extraordinary and hazardous character as to leave no doubt of the nuisance. The mere fact that the business carried on there is of a hazardous character, and largely increases the rates of insurance upon surrounding property, is not sufficient; it must appear, not only that the business or use to which the building is applied is hazardous, but also that it is conducted in such a careless manner, or in such a locality, as to make injurious results probable.' . . .

"In what we have said we are not to be understood as laying down a rule which would thus narrowly restrict municipal legislation for the general safety of the people. Large powers

to this end have been conferred by special charters. . . .

"But in any case, it is important to observe that a building which was lawfully erected, and is a nuisance only because of the mode of its use, cannot be destroyed or removed. Only the business or use can be suppressed. *Cuba v. Miss. C. O. Co.*, 150 Ala. 259, 43 South. 706; 2 Wood on Nuisances, secs. 744, 745. In short, the remedy reaches no further than the necessity of the case demands. Many illustrative cases are collected in the note to *Evansville v. Miller*, 146 Ind. 613, 45 N.E. 1054, 38 L. R. A. 161, 166."

In the case of *Pennsylvania Railroad Co. vs. Kelley*, 77 N. J. Eq. 129, it was decided by the New Jersey Court of Chancery that a building which, because of its inherent weakness or dilapidated condition, is liable to fall into a highway and injure persons, rightfully there is a public nuisance, and the owner may be compelled to either repair or remove it.

But the same Court decided in the case of *Rosenberg vs. Sheen*, 77 N. J. Eq. 476, that under a municipal ordinance providing that an unsafe building must be repaired, or that it may be ordered to be torn down if the building inspector declares that it cannot be made safe, an adjudication by the city building department, condemning the building and ordering its demolition, without any previous finding by the building inspector that it cannot be made safe, and without notice to the owner and opportunity of the owner to be heard, is void.

In a case decided June 12, 1922 (*State vs. Keller*, 189 Northwestern Reporter, 374), the Nebraska Supreme Court adjudged to be unconstitutional a statute declaring that failure to comply with an order of the State Department of Trade and Commerce for abatement of a nuisance charged to exist in the maintenance of a dilapidated building should constitute a misdemeanor. The decision proceeded upon the ground that the law denied due process of law, in failing to provide for notice to the property owner and opportunity to be heard. It was further decided that a finding by a state fire marshal, or other official, that a building is a nuisance is in no way conclusive upon a property owner who has not been notified and given a chance to be heard in the determination of the matter.



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The Grand Rapids Franchise

A Reply by Mr. Nutting to Dr. Wilcox's Criticism in the March Number of
THE AMERICAN CITY, and a Rejoinder by Dr. Wilcox

TO THE EDITOR OF THE AMERICAN CITY:

In reference to criticism of the Grand Rapids Railway franchise, by Mr. Delos F. Wilcox, I am not able to see how anyone can conclude from its provisions that this grant is a perpetual franchise. Neither is there a single provision that abrogates the city's "police power," unless "police power" is defined as the power to refuse the use of the streets by any person or corporation for any purpose which will accrue some selfish benefit while serving the public.

The declaration of the intent of the grant permeates its entire structure. Likewise, the very existence of the franchise in its present form is its own proof of the fact that the public service is considered paramount.

It must be admitted that the rate of interest allowed approximates twice that which the city pays on its own bonds, but that's the price we pay for corporate ownership and management. Theoretically, 3 per cent on the capital could be saved by municipal ownership, but could it be done in practise? If corporate ownership is preferable to municipal ownership, who can say what it will cost to raise capital for urban transportation during the next 30 years?

In the face of the experiences of Saginaw, Des Moines, and other cities, the people of Grand Rapids voted by a large majority to retain and maintain adequate urban transportation service regulated by the rules of intelligent arbitration.

The point that a city shall have absolute authority to say what shall be and what shall not be done with its streets, is well taken, but where millions of dollars of capital are required, investors must know that their investments are reasonably well protected by franchises. Otherwise they would not invest and the city would have no transportation system at all, except by municipal ownership, which may or may not be desirable.

The entire theme of the Grand Rapids franchise is "mutual benefits," and the peo-

ple of Grand Rapids believe that this has been accomplished.

H. GEO. D. NUTTING.

TO THE EDITOR OF THE AMERICAN CITY:

Mr. Nutting admits that, under the new franchise, Grand Rapids is bound to pay for its street railway capital almost double the rate paid on municipal bonds. He denies that the franchise is in any sense a perpetual one, or that there is any provision in it abrogating the city's "police power." Franchises are limited to 30 years under the Michigan constitution, and, of course, the city of Grand Rapids could not confer upon the street railway company rights directly contrary to this provision of the constitution. However, the following provisions of the franchise are of uncommon interest:

The section defining the term is positive in its language, to the effect that the franchise "shall continue in force for a period of thirty years." It does not say how much longer. In another section, however, it says that if, at the termination of the franchise by lapse of time, the city does not elect to buy the property on the terms prescribed by the franchise, the Commission may give a new franchise to another party, which, however, would require that such other party purchase the property, with the further provision that the present grantee shall have the right to continue to operate its property under the terms of such reasonable franchise as the city may adopt, until the city is ready to take it over. What I said in my previous comments was that in so far as it was possible to be done, the franchise had been made perpetual, subject to the right of the city or some other grantee to purchase at the price fixed in the franchise, plus 10 per cent.

With respect to the abrogation of the police power, it is clear that a board of arbitration, upon which the company has equal representation, has authority paramount over the City Commission in such matters as the determination of what ex-



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tensions shall be built and what service shall be rendered. The municipality has to that extent been divested of the police power in favor of an authority half public and half private. Under those circumstances, the company shares equally with the city the power to regulate. It is as if in the days of the saloon a city council had been given authority to pass an ordi-

nance fixing the time when all saloons must be closed, subject to the provisions that if, for example, it fixed midnight and the saloonkeepers did not like that hour, they could refer the question to a board of arbitration, whose authority in the matter would be paramount to that of the city council.

DELOS F. WILCOX.

One Method of Lessening Street Congestion in Large Cities

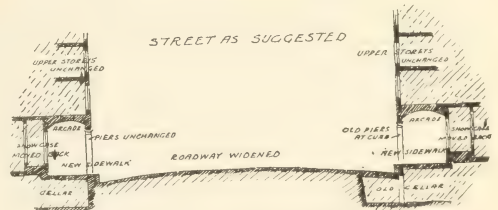
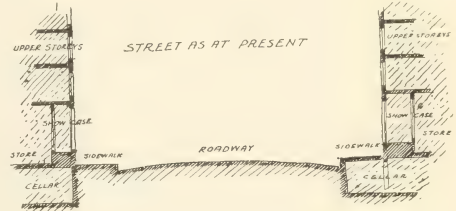
By W. W. Fitzpatrick

CHICAGO is contemplating widening LaSalle Street by cutting off the fronts of the buildings on one side of it back to the requisite width of roadway—and at the cost of millions. Other cities have done the same thing and are considering widening still more streets. We are extending elevated railway lines and making new or adding to old subways—all at appalling costs—in a scramble to provide for the congestion of traffic in our ever growing and overcrowded cities.

Here in Chicago, even if we do get a subway and perhaps two- and three-storied elevated lines, the vehicle and foot traffic will still exceed our present street capacity in the Loop. Most of that section's streets are narrow, and will continue to be uncomfortably crowded, especially at certain hours. But it is so easy to relieve much of that—no tearing down of buildings nor other super-costly and time-consuming construction, but just something that can be done almost over night, so to speak.

Let the city make suitable financial arrangement with the property owners on the over-traveled streets, such as Dearborn and Madison, and simply move the store fronts in a bit, say 16 feet or so, then widen the roadway to take in the present sidewalks, making room for three or four more lines of autos. The fronts of the buildings and their upper stories would remain unchanged, but the space from the front piers of the buildings to the new line of store fronts would be arcaded or covered sidewalks, with ceilings handsomely finished, and all attractively illuminated.

Most of the show-cases have artificial lights all day now, anyway, and certainly it permits of as fine a display of goods as does daylight. Covering the sidewalk is



INCREASING STREET WIDTH BY ARCHED SIDEWALKS

a splendid advantage—freedom from snow and ice in winter, a shelter from the elements always, cool walking in summer; it is not a make-shift expedient but a decided improvement as well as the sanest and least expensive way of accommodating traffic.

Many of the old European cities advertise and are proud of their cloistered or arcaded streets, and people go miles to promenade upon them. Let Chicago start it in the Loop, and, the country over, cities will follow the example, for it is obviously the thing to do.



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Most work could not even start without cement for foundations. With this in mind let's see where the cement industry stands today.

Last year the country used over 460,000,000 sacks of portland cement. Capacity to manufacture was nearly 600,000,000 sacks.

Cement cannot be made everywhere, because raw materials of the necessary chemical composition are not found in sufficient quantities everywhere.

It is now manufactured, however, in 27 states, and there are 117 plants—some one or more within easy shipping distance of nearly every part of the country.

Conservative estimates place the capital invested in the cement industry at \$300,000,000, and value of output for the last 5 years at \$860,000,000.

Capital requirements are large—turnover is slow—on an average less than 3 times in 5 years.

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159 cement plants have been built, most of them in the last 25 years — 166 others went through some stage of construction or financing; only 117 have survived the financial, operating and marketing hazards of that period.

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Dallas	Indianapolis	New Orleans	Portland, Oreg.	Vancouver, B.C.
Denver	Kansas City	New York	Salt Lake City	Washington, D.C.

Municipal and Civic Publications

Prices do not include postage unless so stated

Dublin of the Future.—By Patrick Abercrombie, M.A., A.R.I.B.A., Sydney Kelly, F.S.I., and Arthur Kelly. The University Press of Liverpool, and Hodder & Stoughton, Ltd., London. 1922. XVI + 58 quarto pp. Maps, views, diagrams. Boards, 21s.; paper, 17s. 6d.

The new Town Plan for Dublin, being the scheme awarded the first prize in the International Competition. Published as Volume One of the Publications of the Civic Institute of Ireland. The report of the Adjudicators—Professor Patrick Geddes, of Edinburgh; Charles J. McCarthy, City Architect of Dublin, and John Nolen, of Cambridge, Mass., on the competitive designs, is included in this volume. The prize-winning plan was originally prepared in 1914, and since then many changes have come to Dublin. This plan is therefore supplemented with many drawings subsequently prepared to explain the authors' recommendations, is reinforced by important data, and revised in accordance with the original framework. The main recommendations of the plan are: a new street center; the grouping of industrial areas at certain points; the building of new housing quarters at Crumlin and Cabra and relating them to the center by direct avenues; and the creation of a park system. Many of the minor proposals can easily become the early stages of a final scheme based upon the present comprehensive plan. The report is imposing, yet readable, and admirably conveys to the student of city planning the skill and beauty, the practical and suggestive merit of the prize-winning plan.

Studies on Building Height Limitations in Large Cities, with Special Reference to Conditions in Chicago.—Compiled by Charles M. Nichols. Published by the Chicago Real Estate Board Library. 1923. 299 pp. Illustrated. \$2.50.

Proceedings of an investigation of building height limitations conducted under the auspices of the Zoning Committee of the Chicago Real Estate Board. A book of great value to city planning commissions, zoning committees and city engineers. Presenting views and arguments of advocates and of opponents of lower building height limits, thus making it possible to view the subject with broad intelligence. This work of a subcommittee of nineteen citizens especially qualified to discuss the effect of high buildings on health, safety, and street congestion, covered six months of expert investigation and is said to be the most extensive and complete ever conducted in relation to this subject.

The Doncaster Regional Planning Scheme.—By Patrick Abercrombie, University of Liverpool, and T. H. Johnson, Doncaster. The University Press of Liverpool, Ltd., and Hodder & Stoughton, Ltd., London. 1922. XII + 93 quarto pp. Maps, views, diagrams. 10 shillings.

Containing also an appendix on Coal Subsidence, by Joseph Humble, Doncaster. This report covers eight local authorities and an area of about 169 square miles, with a population of 139,940, and involves the fundamental problems of coal mining and the consequent subsidence. The committee's proposals relate to the development of a number of satellite towns, functioning individually as complete entities, but all part of the Doncaster industrial region. No stringent measures are suggested. The portion of the report devoted to road and railway accessibility is particularly interesting. A most attractively presented report, well rewarding study.

The Traffic Problem of New York City.—By William P. Eno. A paper read before the Harvard Engineering Society, March 8, 1923. 8 typewritten pp. Reviewing plans suggested in the past which have been treated with indifference, and making a number of suggestions for dealing with the present situation. Advocating the standardization of general traffic regulations for the whole country and the entrusting of the scientific development of traffic regulation to trained highway traffic regulation engineers. (Apply to the Eno Foundation for Highway Traffic Regulation, Inc., 1771 N Street, Northwest, Washington, D. C.)

Steam Power.—By C. F. Hirshfeld and T. C. Ulbricht, formerly Professor and Instructor, respectively, Department of Power Engineering, Sibley College, Cornell University. Second Edition. John Wiley & Sons, Inc., New York. 1922. 454 pp. \$3.25.

This well-known elementary text-book on the steam engine and its accessories, although primarily intended for colleges and higher technical schools, contains the essential theory of the subject, so written that the non-technical man can get a great deal out of it. This second edition contains a chapter on "Performance of Steam Power Equipment," which greatly improves the book as to completeness.

The Charity Organization Movement in the United States.—Frank Dekker Watson, Ph.D., Department of Sociology and Social Work, Haverford College. The Macmillan Company, New York. 1922. X + 560 pp. \$4.00.

A history of the efforts abroad and in the United States for dealing with poverty, which led to the charity organization movement, and a discussion of the principles and methods of the movement and its development up to the present time. The valuable chapters on "Tests of Efficiency" and "Prejudices and Criticisms" are followed by one on "The Philosophy of Charity Organization," which expresses the "passionate concern that our neighbors shall have from us not just dealing only, but the electric touch of human sympathy."

Participation of the Federal Government in Education.—Majority report of Special Committee on Education of the Chamber of Commerce of the United States. November 20, 1922. 110 pp. Considering the questions: Shall the states continue to maintain and be responsible for the public schools of the country? Shall the National Government take over the support and control of the schools? Shall there be a divided support and control, partly vested in the National Government and partly vested in the states? (Apply to James J. Storrow, Chairman of the Committee, 44 State Street, Boston, Mass.)

A Model State Constitution.—Prepared by the Committee on State Government of the National Municipal League. With the exception of the four sections on public welfare, this document has been approved by the membership of the League. The purpose of the model constitution is to suggest principles and to arouse discussion. (Apply to the National Municipal League, 261 Broadway, New York, N. Y.)

The Ten Book, or How to Keep Well.—Issued by the Maine Public Health Association, with the cooperation of various organizations, newspapers and individuals in Maine, and of the Metropolitan Life Insurance Company. Ten facts are given by health experts on each of ten subjects vital to health promotion: The Family Physician; The Public Health Nurse; Social Hygiene; Mental Hygiene; Child Hygiene; Builders of Maine; Your Body; Your Eyes; Your Teeth; Tuberculosis. Definite, direct information that helps in winning health, happiness, and prosperity. (Send 2c. to the Maine Public Health Association, Augusta, Maine.)

The Part-Time School for the Working Youth.—A formulation of the theory, principles, problems, and practises involved in the New York State program of part-time or continuation education. 15 pp. Illustrated. Prepared at a conference held in Ithaca, August 2-4, 1922, by a committee of specialists on industrial education and part-time schools. University of the State of New York Bulletin No. 756, April 15, 1922. (Apply to the University, Albany, N. Y.)

Proceedings of the Fiftieth Annual Convention of the International Association of Fire Engineers.—The convention was held at San Francisco, Calif., August 15-18, 1922. 268 pp. Illustrated. Reported by Ernest J. Mott, San Francisco. Published by the Secretary of the Association, James J. Mulcahey, Chief, Yonkers, N. Y. (Apply to publisher.)

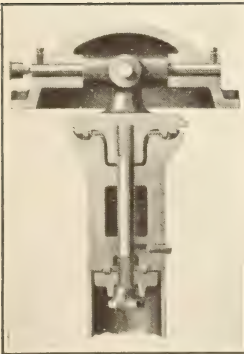
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Report on Sewage Disposal for the City of Trenton, N. J.—By George A. Johnson, Consulting Engineer, 1922. 111 pp. Many tables. The portion of the original report here presented includes information under the following chapter heads: Historical; Population; Temperatures; Sewage Flows; Composition of Trenton Sewage; Trade Wastes; Flow of the Delaware River; Composition of Delaware River Water; Sewage Disposal Plant Site; Sewage Treatment Processes; Allentown Test of the Direct Oxidation Process of Sewage Treatment. (Apply to George A. Johnson, 150 Nassau Street, New York, N. Y.)

The Direct Primary.—The March, 1923, issue of "The Annals." III + 286 pp. Containing articles by authorities under the general head and under the following divisions of the subject: Special Features of the Direct Primary; The Operation of the Direct Primary in Particular States; and Digest of Primary Election Laws. Also the Book Department and the Report of the Board of Directors of the American Academy of Political and Social Science, year ending December 31, 1922. The editor in charge of this volume is J. T. Salter, Instructor in Political Science, University of Pennsylvania. Price \$1. (Apply to the American Academy of Political and Social Science, 39th Street and Woodland Avenue, Philadelphia, Pa.)

Regional Planning Theory—A Reply to the British Challenge.—By Arthur C. Comey, Fellow, American Society of Landscape Architects. 1923. 18 quarto pp. Diagrams. Dealing with the British garden city theory as exemplified in Letchworth and Welwyn, and its flaws as developed with time and growth, and presenting the author's ideas regarding a more workable theory—regional planning. (Apply to Mr. Comey, Abbot Building, Harvard Square, Cambridge, Mass.)

Kalispell, Mont.—Ninth Annual Report of the Water Department for the year ending December 31, 1922. (Apply to W. H. Lawrence, Superintendent.)

The Commonwealth Fund.—Fourth Annual Report, for the years 1921-1922. January, 1923. 55 pp. The appropriations voted during this period are under the heads of Child Welfare, Foreign Relief, Educational and Legal Research, Health, and Special Miscellaneous Grants. The purposes of the Fund in relation to the various divisions of its work, and the way in which the work has been carried on are told in an interesting way. (Apply to The Commonwealth Fund, 1 East 57th Street, New York, N. Y.)

Los Angeles, Calif.—13th Annual Report of Board of Public Utilities, July 1, 1921, June 30, 1922. (Apply to H. Z. Osborne, Jr., Chief Engineer of the Board.)

Forsokshuser.—Report (in Norwegian) of Professor Andr. Bugge on his "experimental houses" and the experiments with building materials which he, with state aid, has been carrying on for the last three years in Trondhjem, Norway. 1922. Quarto. 79 pp. Many drawings and diagrams. An English edition is now being prepared. (Apply to Norsk Forening for Boligreform, Kristiania, Norway.)

No. 2 Twice 55 Community Songs—The Green Book.—A new collection containing no songs that appear in its companion issued in 1919. It aims to serve as a bridge from the community "sing" to the choral society, and it includes choral material of high grade and simple songs of many types and for many different occasions. Only voice parts are given in this edition. The "Complete Edition" includes full accompaniments, and orchestral parts can be furnished by the publishers. List price 25 cents; net price in quantity direct from publishers, 20 cents. (Apply to the publishers, C. C. Birchard & Company, Boston, Mass.)

Special Report of the [Massachusetts] Department of Public Health Relative to the Condition of North River in the Cities of Salem and Peabody and the Measures Necessary for Improving the Sewerage System of Said Cities Under Chapter 40, Resolves of 1922.—January, 1923. House Document No. 1175. 59 pp. 1 photograph. Maps, diagrams, tables. (Apply to X. H. Goodnough, Chief Engineer, State Department of Health, Room 141, State House, Boston.)

Tentative Report and a Proposed Zoning Ordinance for the City of Chicago.—January 5, 1923. Quarto. 36 pp. Views and diagrams. Fully explaining the need of zoning, and the features of the "reasonable and comprehensive" zoning ordinance which was adopted by the Chicago Zoning Commission on December 8, 1922. (Apply to the Chicago Zoning Commission, 163 West Washington Street, Chicago, Ill.)

State Regulations of Motor Vehicle Common Carriers; State Restrictions on Motor Vehicle Operation; Special Taxation for Motor Vehicles.—Three pamphlets issued by the Motor Vehicle Conference Committee, 366 Madison Avenue, New York, N. Y., representing the American Automobile Association, the Motor and Accessory Manufacturers' Association, the National Automobile Chamber of Commerce, the National Automobile Dealers' Association, and the Rubber Association of America. January 1, 1923. 12, 16, and 24 pp., respectively. (Apply to the Committee, address above.)

Salaries of High School Principals and City Superintendents of Schools in Wisconsin Cities.—Information Report No. 28 of the Municipal Information Bureau, University Extension Division, the University of Wisconsin. January, 1923. 8 mimeographed pp. Data compiled at the request of a Wisconsin mayor, from the official reports of high school principals for the year 1921-22. (Apply to the Bureau, as above, Madison, Wis.)

The Modern Hospital in the City Plan.—By Philip W. Foster, city planner, Cambridge, Mass. In the March, 1923, issue of "The Modern Hospital." 5 quarto pp. Illustrated. "The location and establishment of a modern hospital in any city offer great possibilities for increased beauty to the community." (Apply to "The Modern Hospital," 22 East Ontario Street, Chicago, Ill.)

Annual Report of the Superintendent of Lamps and Lighting to the Mayor and City Council of Baltimore for the Fiscal Year Ending December 31, 1921. (Apply to John J. Hanson, Superintendent.)

The City and County of Philadelphia—A Discussion of Their Legal Relations.—By Clarence G. Shenton of the Philadelphia Bar, a member of the staff of the Bureau of Municipal Research of Philadelphia. February, 1923. 95 pp. The city and county of Philadelphia have the same boundaries, and the report discusses the history of efforts to consolidate the two governments. A limited number of copies available free. (Apply to the Bureau, 1418 Chestnut Street, Philadelphia, Pa.)

Town Planning and Development in the Federated Malay States.—Preliminary report and general survey with recommendations to the Acting Under Secretary to the Government of the Federated Malay States, by Charles O. Reade, Government Town Planner. Dealing with developments up to April, 1922; including a study of existing towns and their problems in relation to town planning, and outlining the detailed works upon which the Government Town Planner is engaged. 30 large pp. (Apply to Mr. Reade, at the Government Buildings, Kuala Lumpur, Federated Malay States.)

The Direct Primary—With Special Reference to the State of Maine.—By Orren Chalmers Hornell, Ph. D., Professor of Government, Bowdoin College, Brunswick, Maine. Bowdoin College Bulletin No. 123, December, 1922. Municipal Research Series No. 4. Considering in an unprejudiced manner the history and working of the direct primary law in Maine and other states. Facts, based on careful investigation and statistics, rather than a plea for the retention or the rejection of the law. A limited number of copies available at 50 cents per copy. (Apply to The Bureau for Research in Municipal Government, Bowdoin College, Brunswick, Maine.)

Toledo's Non-Partisan Movement.—By Wendell F. Johnson, M. A. 1922. 72 pp. Showing what conditions gave rise to the non-partisan movement in Toledo; what the character of that movement has been; what it has accomplished; and wherein it has failed. Based largely on current newspaper accounts of the events narrated, supplemented by interviews with participants in or observers of the movement. (Apply to author, Toledo, Ohio.)

Proposed Charter of the City of New York (1923).—Approved by the New York Charter Commission on March 5, 1923. 168 pp. (Apply to Howard Lee McBain, Secretary of the Commission, New York, N. Y.)

The Making of Topographical Maps of Cities and Towns, the First Step in Town Planning.—By Douglas H. Nelles, D. L. S., M. E. I. C., Supervisor of Topography, Geodetic Survey of Canada. 1921. Publication No. 9, Geodetic Survey of Canada. 40 pp. Maps, tables, diagrams. This publication shows the necessity for topographical maps and describes the different operations, giving a fair amount of detail as to the accuracy required. (Apply to Noel Ogilvie, Superintendent, Geodetic Survey of Canada, Ottawa, Canada.)



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community pro-
tected ? ? ? ?
USE YOUR INFLUENCE.

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The Motorcycle

Methods, Materials and Appliances

News for City and County Engineers, City Managers, Water-Works Superintendents, City Controllers, Park Superintendents, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

Interchangeable Tank and Body Units for Trucks

Many cities are using light-weight trucks for hauling services for several departments. The Heil Company, Milwaukee, Wis., has made a study of these needs and provided a sprinkler tank and also an ash and rubbish body which are interchangeable for mounting on a Ford chassis.

The sprinkler tank is so designed that it can be easily removed from the chassis with a few minutes' labor. It is held in place with U-bolts, which are furnished with the equipment. As the tank is removable, it may be replaced with an ash body, so that the chassis may be used by another department. The sprinkler tank holds 550 gallons and is furnished with a manhole for cleaning-out purposes, and a $2\frac{1}{2}$ -inch swivel connection for filling. The outlet is $4\frac{1}{2}$ inches by $6\frac{1}{2}$ inches in diameter and terminates in two 4-inch hose connections to the sprinkler heads. These heads have a radius of 18 feet and are controlled by levers bolted in place alongside the emergency lever in the cab of the truck. The tank is fitted with longitudinal and transverse surge plates so that the water is held in check.

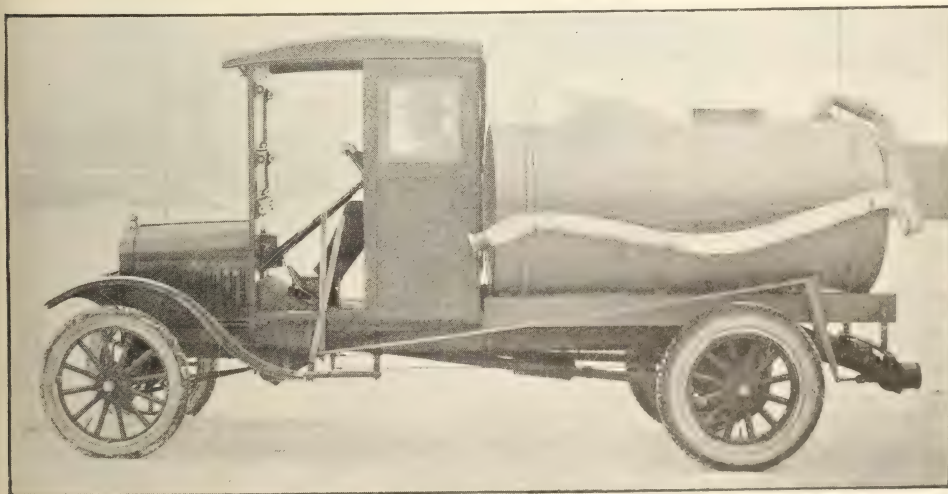
The ash and rubbish body has a capacity of 60 cubic feet. It is fitted with hinged sides, which are held in place with special lugs. The over-all height of the body is 28 inches. The sides are hinged 18 inches from the bottom, so that when the upper section is turned down,

the ashes, cinders and rubbish can be easily dumped over the sides. The tail-gate is double-acting and can be suspended level with the floor of the body. The body is equipped with the new Heil hand hoist, which gives a dumping angle of 55 degrees. This is sufficient to dump out the stickiest kind of material. The longitudinal seam of the body is welded so that it is water-tight.

A Steel Bracket for Street Signs

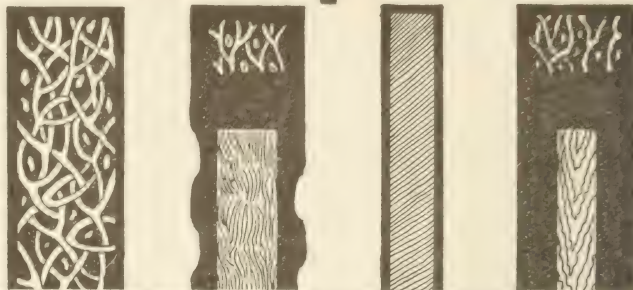
In order to have street signs entirely satisfactory they must be mounted in brackets which will withstand the ravages of the weather and the severe vibrations to which they are constantly subjected. The brackets of Lyle Signs, 171 27th Avenue S. E., Minneapolis, Minn., have been developed after many years of experimental research with various types of materials. This company has found that pressed steel is especially adaptable for this particular purpose, because it can be drawn to exact dimensions and all parts can be made absolutely interchangeable. The company claims that the usual cast iron bracket is subject to breaking, especially in cold weather. The steel bracket, being practically unbreakable, is well adapted to the service it is expected to render. While the cost of the new bracket is a little more than that of castings, it is said to be neater in appearance and to last much longer.

The cap bracket consists of a pressed steel



A TANK FOR MOUNTING ON FORD TRUCKS FOR STREET SPRINKLING

Servicised Expansion Joints



MONITORS OF THE ROAD

Old principles of expansion joint provide fillers of solid asphaltic content or impregnated fibre and asphalt in an elastic mass. ¶ The fundamental purpose of the filler is to re-occupy the space left by two contracting slabs. ¶ Solid asphaltic or impregnated fibrous materials contract, concrete slabs likewise contract on cooling. ¶ Three contracting bodies cannot occupy the same space as when expanded. Servicised Joints *expand* when the concrete slabs contract. ¶ This is the key to a permanent waterproof joint; a correct answer to the problem of expansion between two contracting bodies. Unimpregnated cellular fibrous matter in Servicised Joints brings about this re-expansion after compression is relieved.

Trapped Under Compression: The print to the right is an example of oozing under compression. Due to the hard asphalt surfacing over the concrete base, the traffic could not carry the surplus away because it was locked in between the asphalt surfacing and base. The force was great enough, however, to form bulges in the hard asphalt surface.



A Bituminous and Impregnated Fibre or Elastic Mass: No better proof of indiscriminate oozing. No better illustration of the need of expansion joint of the proper kind. The action in this instance resembles that of paste in a tube being squeezed with one side open. Action of this kind causes tremendous waste, without resulting in good. Servicised Joints will prevent this.

Write Us About Your
Expansion Joint
Problems

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TYPE B
75% Bitumen
25% Cellular Fibre



TYPE D
Self-Expanding
Non-Raising



TYPE C
Felt Center-Coated
Sides-Sidewalk Joint



TYPE AA
3/16 Veneer Core

Four Types of Servicised Expansion Joints



in Which the Oozing Tendency Is Controlled

Servicise the Crevice and Save the Road



DIAGRAM OF STREET SIGN BRACKET

plate drawn down to a cup-shaped form. This bracket is inverted over the pipe-standard and is fitted with three case-hardened set screws, which hold it securely in place. A $\frac{5}{8}$ -inch bolt passes through the cap bracket. Before the bolt is inserted, a heavy washer is slipped on next to the head. This gives the bolt a fulcrum point well down into the pipe, since this washer is made to exactly fit the inside of the pipe. The spacer takes up the play between the washer and the top of the cap bracket, so that when the bolt is tightened the sign becomes absolutely rigid. The cap clip is constructed similarly to the upper swivel clip and has projections which fit into recesses of the cap bracket. This insures a permanent position of the lower street sign so that it will remain at the angle in which it is originally installed. The lower swivel clip consists of a series of concentric circles which are pressed into the face of the plate, while the upper swivel clip consists of projections so designed that they will fit into the recesses of the lower clip at any angle desired. This is an important feature, because it is frequently necessary to fit signs at various angles at intersections of streets. Every town has many streets that are not at right angles and it is the purpose of this swivel assembly to allow the sign to be rigidly held at such an angle that the signs will run parallel with the streets which they designate.

These brackets have been installed in Minneapolis, St. Paul, and Faribault, Minn.; East St. Louis, Ill.; Lexington, Ky.; Benton Harbor, Mich.; Newport News, Va., and several other cities.

Curing Concrete Roads

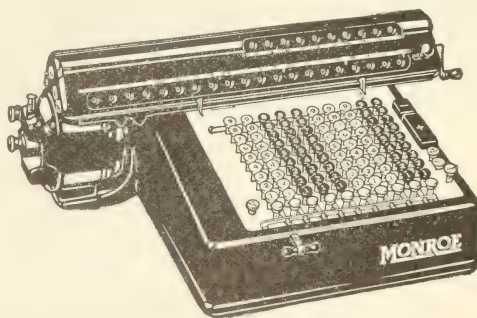
The Dow Chemical Co., Midland, Mich., will send free on application a practical book on the use of calcium chloride flakes in the curing of concrete roads.

An Automatic Calculating Machine

The new portable automatic model calculating machine recently brought out by the Monroe Calculating Machine Company, Orange, N. J., can be used on any desk or stand and is electrically operated. It retains the visibility of operation and wide applicability of the standard Monroe for use in city and county offices, and is built on the same mechanical principles, but has the distinct advantage of electric operation.

There are two operating bars at the right of the keyboard; the plus bar has only to be touched to add, and the minus bar to subtract. For rapid addition, the flexible keyboard with its automatic register and control and with an instantaneous dial clear-out makes this probably the speediest full keyboard set-up adding machine yet introduced. In case the supply of current is shut off for any reason, the Monroe Automatic can be used as a hand-operated machine by the ready insertion of the operating crank. An ingenious mechanical control prevents locking or damage to the machine and also safeguards it against operating abuse.

This machine, equipped with a light, compact motor located at the left of the machine under the overhang of the carriage, weighs only slightly more than the hand-operated machine. It clears itself almost instantly after the result is obtained, thus being always ready for the operator's next move.



A NEW AUTOMATIC MACHINE TO SPEED CALCULATING

Middle-West Engineers Open Pacific Coast Office

The Burns & McDonnell Engineering Company, Interstate Building, Kansas City, Mo., specialists in municipal engineering problems, have opened a new office at Los Angeles, Calif., in the Marsh-Strong Building, with Chester A. Smith, a member of the firm, in charge. This office is now handling the engineering work on the half-million-dollar Flagstaff, Ariz., water-supply project and the new water-supply and filtration plant for Lewiston, Idaho.



Interior Chemical Laboratory, Pittsburgh Testing Laboratory, Pittsburgh, Pa.

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DALLAS

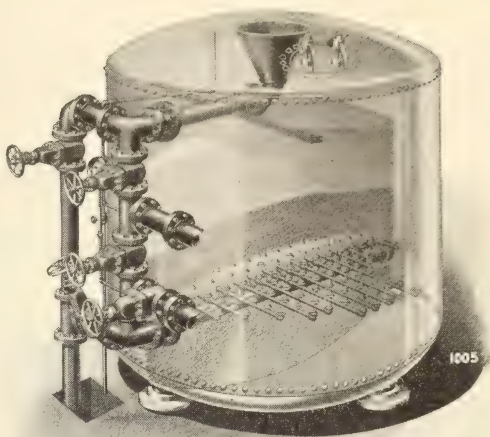
The Design and Construction of Swimming Pools

The most common type of swimming pool is the interior pool in clubs, schools, and Y. M. C. A. buildings, used for athletic contests or in connection with gymnasium exercises. Besides the ordinary pools, special pools are built for sports, such as water-polo or water-basket-ball. Outside pools for swimming or wading during the warm season are quite common.

Interior pools are generally built of reinforced concrete or steel and must be watertight. The steel tank is used where there is excessive ground water, as when the pool is located in basements or placed in excavation. The steel shell is used merely as a lining. Many pools are now placed on the upper floors of buildings, and the design must be such that adequate support is provided when the pool is full. The advantage of placing a pool in this location is that light and air are secured, and the basement is left free for the power-plant and the purifying and heating apparatus.

The minimum dimensions of a swimming pool as described by the Intercollegiate Rules for Athletic Contests and adopted as standard for Y. M. C. A. buildings are: width, 20 feet; length, 60 feet. Other sizes measure in multiples of 5 feet of width and 15 feet of length. The depth of water should not be less than 3 feet at the shallow end and 7 feet at the deep end. The most serviceable shape is the so-called spoon-shaped bottom. This has a gradual slope to the middle of the length, after which it is sloped both ways to give a maximum depth at a point 15 feet from the deep end of the pool. The majority of the pools are not over $7\frac{1}{2}$ feet deep, but for diving contests a depth of 8 to 10 feet is found advisable.

The filtration system developed for swimming pools by the Graver Corporation, East Chicago, Ind., consists of a steel pressure cylinder, which the water enters by means of a tee at the center of the vertical pipe shown in the illustration. The water then passes upward through a valve into the shell of the filter near the top. Water is distributed above



PHANTOM VIEW OF PRESSURE FILTER FOR SWIMMING POOL

the top of the filter chamber by means of a large upturned diffusing tunnel, and then passes downward through the filtering medium to the manifold collecting system. The filtering medium consists of crushed quartz carefully graded, screened and washed. The edges are sharp, forming small interstices between the grains. The quartz is placed above two layers of gravel, one medium fine immediately above the manifold, and the other somewhat finer. The operation of the filter is exceedingly easy. When the filter is washed to remove the accumulated suspended matter, the water is forced under pressure into the manifold pipes, upward through the filtering material, overflowing the surface of the bed, and is then conducted off to waste through the top overflow funnel. The method of wash is the so-called high-velocity or high-water-rate method. No other means of agitation is necessary.

The Graver instantaneous water heating system consists of brass tubes, $1\frac{1}{4}$ inches outside

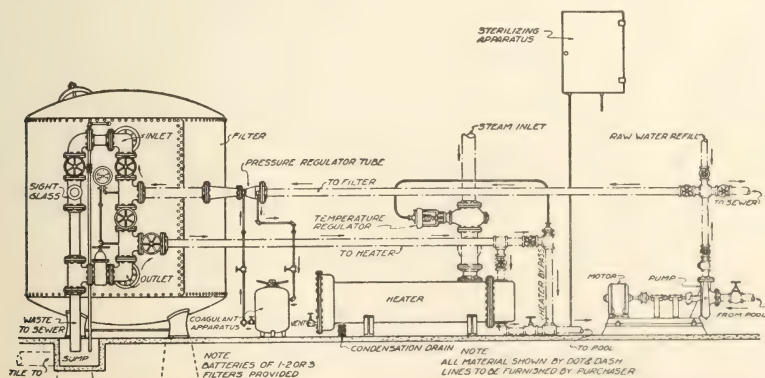
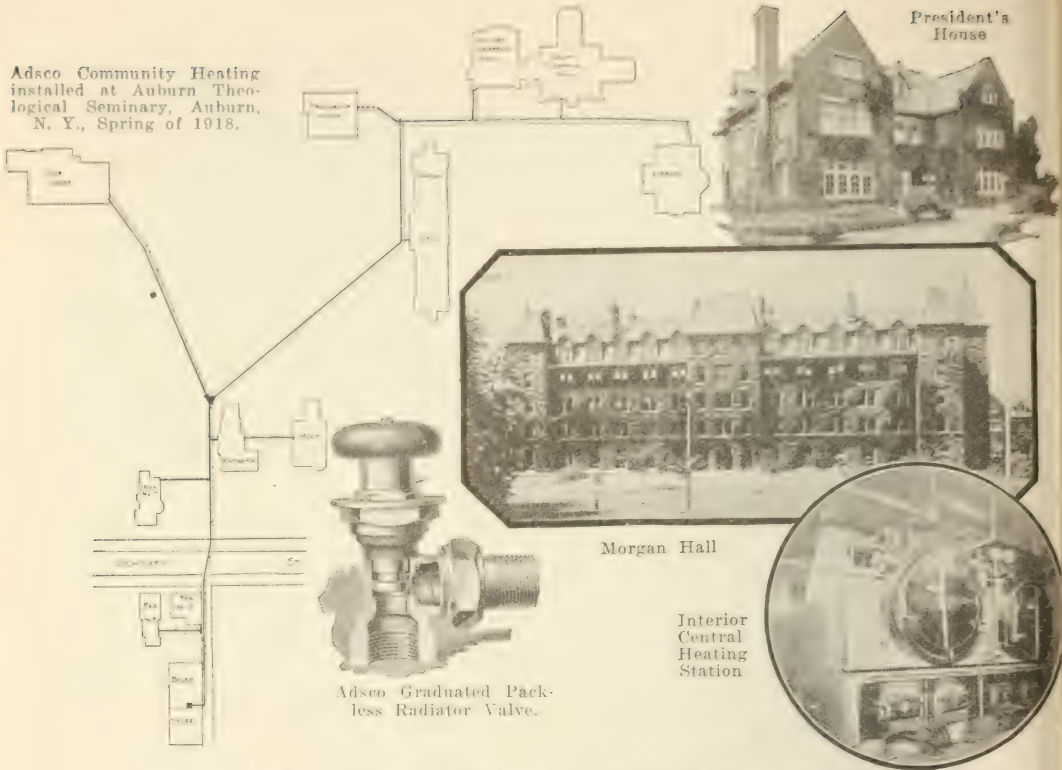


DIAGRAM SHOWING THE ARRANGEMENT OF HEATER, FILTERS AND PUMPS IN A GRAVER REFILTRING OR RECIRCULATING SYSTEM FOR SWIMMING POOLS

Adsko Community Heating installed at Auburn Theological Seminary, Auburn, N. Y., Spring of 1918.



Auburn Theological Seminary Enjoys Adsko Community Heating

For many years Auburn Theological Seminary had been heating its eleven buildings with individual systems. This meant fire hazard in each building, waste of fuel, and unnecessary expense of operation.

Dr. Stewart, President, realizing the discomfort and expense of such antiquated heating methods invited our engineers to suggest the most modern way to take care of this heating problem. The result was our design and installation in the spring

of 1918 of 1447 feet of underground mains distributing steam from a central station plant with not only the economy of one boiler in place of eleven heating systems, but also the comfort of more even temperatures, better controlled in each of the eleven buildings.

Those in control of similar groups of buildings are invited to follow Dr. Stewart's example and avail themselves of our forty years' engineering and contracting experience in Community Heating.

Write for our interesting booklet on Adsko Community Heating, Bulletin No. 20-AC. For individual buildings, ask for Bulletin No. 158-AC, on Adsko Heating for use with any type of boiler.

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ADSCO HEATING

diameter, surrounded with steam. The tubes are spaced as closely together as practical, and are contained in a shell just large enough to hold them. This method of heating the water on its way to the pool is economical because no storage is provided or needed and the water heats very rapidly in passing through the inside of the tubes at high velocity.

Choosing Street Lighting Globes

The choice of a proper globe for a street lighting unit has a great deal to do with the efficiency and cost of the system. The Macbeth-Evans Glass Company, Chamber of Commerce Building, Pittsburgh, Pa., has developed types of street globes to suit practically all street lighting conditions.

Macbeth-Alba globes, which, it is claimed, have been used on 90 per cent of the street lighting systems of the world, stimulated the research department of the company to greater effort toward securing a glass that would satisfy more completely the requirements of an ideal street lighting installation. This research has produced the Macbeth-Monax globe, which has an average absorption of 15 per cent, giving remarkable diffusion. The intensely brilliant lamp filament of a modern high-powered light

source is almost impossible to locate in any one of these globes.

The most expensive method of buying globes is to purchase them by the dozen. The truly economical way is to purchase globes by the year. The cheapest globe is often the most expensive because it lacks mechanical strength. The high-powered lamps commonly used to-day generate great heat, which is radiated in the enclosing globe. On a cold, stormy night, the heat on the inside of the globe and the cold on the outside cause a strain which will crack a globe of inferior quality. In the manufacture of Macbeth-Monax globes, careful annealing or tempering gives them the mechanical strength to withstand severe changes in temperature as well as the destructive effect of rain, hail, snow or wind. These globes also retain their smooth, polished surfaces almost indefinitely, making repeated scrubbing unnecessary when cleaning the globe.

Modern concentrated filament lamps have a higher proportion of light of short wave lengths and considerably less of the yellow, orange and red, thus approaching more nearly to daylight. It is claimed that Macbeth-Monax enclosed globes give the same spectral character as that of the lamp; that is, the same proportions of blue, red and green are transmitted to the eye that are given forth by the lamp.



MONAX GLOBES ON LIGHTING STANDARDS, ORANGE GROVE AVENUE, PASADENA, CALIF.

New Holt Manager at Omaha

The Holt Manufacturing Company, Peoria, Ill., has announced the appointment of W. G. Crawford as District Manager in charge of the Omaha branch and territory, comprising the states of Iowa and Nebraska and the southern part of South Dakota. The Omaha branch has been moved from 242 Farnam Street to new quarters at 708-712 Tenth Street. Mr. Crawford has previously been in charge of the Holt branch at Des Moines and is now in charge of the enlarged and consolidated territory. The Des Moines station will be continued, with George Doering in charge. The consolidation of the Iowa-Nebraska territory, with headquarters at Omaha, effects a substantial increase in the service and sales facilities, with new and enlarged quarters in the Terminal Warehouse Building, and a stock of Caterpillar tractors and accessories will be carried.

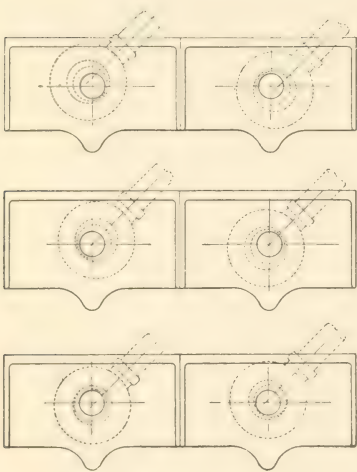
THE VALUE OF MANUFACTURERS' CATALOGS

The attention of readers of THE AMERICAN CITY is called to pages 4 and 6 at the front of this issue. The catalogs listed are selected with care to serve the interest and needs of our readers. This literature contains practical suggestions for various departments of municipal work.



Note the double eccentric bushings. This is series 2006-A—Josam Double Drainage Trap and Drain for Shower or Urinal Receptors.

When the “Roughing In” Is Out



Above are shown a number of positions of the Josam Trap and Drain as “roughed-in” relative to the drain openings in the urinal receptor. A variation of $1\frac{1}{2}$ inches can be readily compensated by installing the Josam 2006-A or our 3001 series which is the same type without trap.

IN public comfort stations, public buildings and all places where batteries of urinals are installed, a slight irregularity in the first stall set will throw off the “roughings” for the second stall. These irregularities become more pronounced with each additional stall and to correct the “roughing-in” costs money.

The Josam Double Drainage Urinal Trap and Drain with adjustable eccentric bushings solves the problem. It meets distortions or irregularities in receptors when they will not coincide with “roughed-in” connections and assures a perfect fit. See diagram at left.

Send for Catalog F—it describes in detail the complete Josam line.

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Factories: 2nd & Canal Road MICHIGAN CITY, IND.

Branches: New York, Cleveland, Chicago, St. Louis, Detroit, Seattle, San Francisco, Los Angeles, Washington, D. C., Boston, Buffalo, Albany, Atlanta. Canada: Montreal, Toronto.

“There are no Substitutes
for Josam Drains”

Josam
DRAINS
STANDARD
OF AMERICA

Reports on Diesel Engine Operations

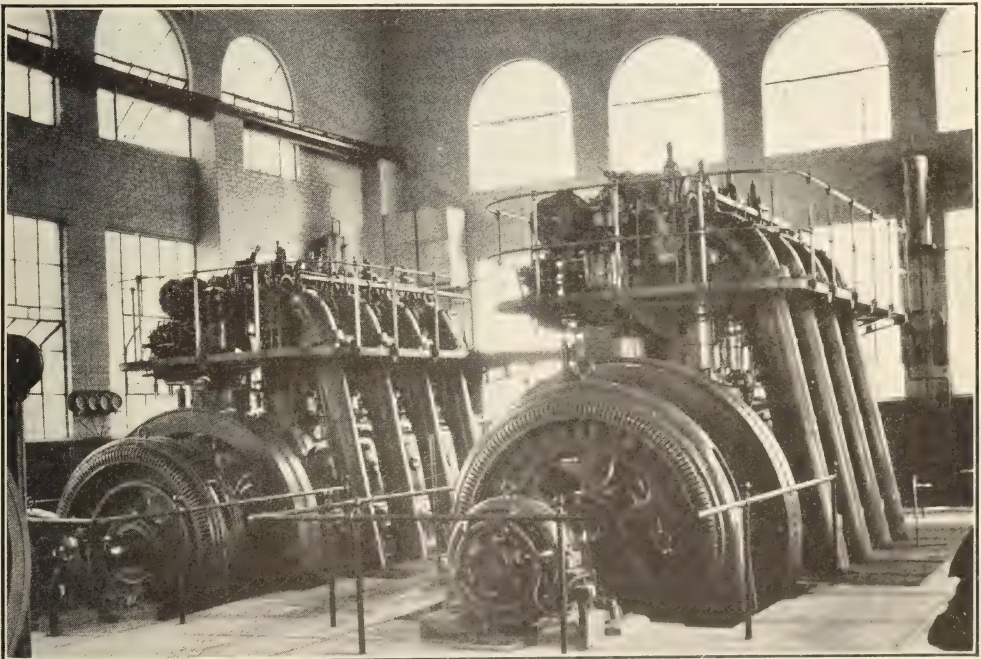
Recently a Louisiana city was considering an installation of Diesel engines made by Busch-Sulzer Bros. Diesel Engine Company, St. Louis, Mo., and in order to secure information which might be helpful in deciding on the type of engine to install, letters were sent to a number of cities operating Diesel engines, asking for their experience. We take pleasure in abstracting a number of these letters, containing information which may be helpful to readers of *THE AMERICAN CITY*.

S. E. Folk, Superintendent, Board of Public Affairs, Bryan, Ohio, reports that in 1907 they installed two 225-horsepower Diesel engines. In 1912, one 450-horsepower engine was added, and another 520-horsepower engine in 1919. These are used in the electric light and water-works plant with entire satisfaction. In 1920, the cylinders on the two 225-horsepower engines were rebored, new pistons put in and a few bearings rebabbited. The engines are now running with the same reliability and satisfaction as when new. Repairs on these engines have been very low.

A. V. Youens, City Electrician, Palo Alto, Calif., reports that they have used several types of fuel oil engines, and in 1920 purchased a 750-horsepower Busch-Sulzer vertical two-cycle Diesel engine. In the larger sizes, the tendency is toward the two-cycle design, and up to 500-horsepower, 4-cycle engines seem to be preferable. While the 4-cycle machine is

somewhat more efficient in fuel economy, the high total pressures become a problem; as the cylinders increase in size with the larger engines, increasing the number of cylinders to keep them small would lead to complications. Mr. Youens states that they are thoroughly satisfied with Diesel engine operation, and the operators, the same men who operated the earlier steam plant, greatly prefer the Diesel to the steam-driven plant. In fuel economy, the Diesel engine in small sizes will beat the most refined steam plants by about 2 to 1, and the more refined the steam plant, the greater the difference in simplicity, favoring the Diesel engine.

Homer I. Steffa, Mechanical Engineer for the Sanitary District of Chicago, reports that four Busch-Sulzer engines, each of 750-horsepower, direct-connected to 500 kilowatt generators, are installed in the Sanitary District plant, making the total plant capacity 3,000 horsepower or 2,000 kilowatts. The Diesel engines are operated in parallel with a hydro-electric plant of 36,000 horsepower about 42 miles away and a steam-turbo generating plant of 4,000 kilowatts about 15 miles away. The primary purpose of the Diesel engine plant is to furnish stand-by power for sewage and storm water pumping, but because of trouble at both the hydro-electric and the steam turbine plant, the Diesel plant has been in practically continuous operation at full capacity since June 16, 1922. They have experienced no engine trouble, and the plant delivers about 14 kilowatt hours per gallon of fuel oil used.



AN INSTALLATION OF BUSCH-SULZER DIESEL ENGINES IN DUNCAN, OKLA.

This installation consists of one 365-b.h.p., 225-r.p.m., 4-cylinder, 4-cycle, type B engine, direct-connected to a 312-kv.-amp. General Electric generator, and one 520-b.h.p., 200-r.p.m., 4-cylinder, 4-cycle, type B Diesel engine, direct-connected to a 450-kv.-amp. General Electric generator



TURTLE BACK SILENT TRAFFIC OFFICER

Unequaled for Wide or Narrow Streets
 Safety Islands - Bridge Approaches
 Sharp or Narrow Turns
 Intersections with or without tracks
 Indispensable in Heavy Traffic
 Write for Special Offer

UNION IRON PRODUCTS CO. EAST CHICAGO, INDIANA.



MAKE BETTER ASPHALT STREET REPAIRS



The Improved Equitable Asphalt Heater Softens 1500 Square Yards a Day

Proper bonding of old and new asphalt is made possible by this fool proof machine which requires hot water to operate. The heating hood slides on the ground saving time and heat. The machine heats 45 square feet of pavement in 1 to 2 minutes and moves quickly ahead. Send for our new prices and specifications.

THE EQUITABLE ASPHALT MAINTENANCE COMPANY
 1901 Campbell Street
 Kansas City, Mo.



A STANDARD of QUALITY

Enterprise iron fencing for all municipal needs has been recognized as the standard for thirty-eight years
 Catalog No 22C tells the Whole Story

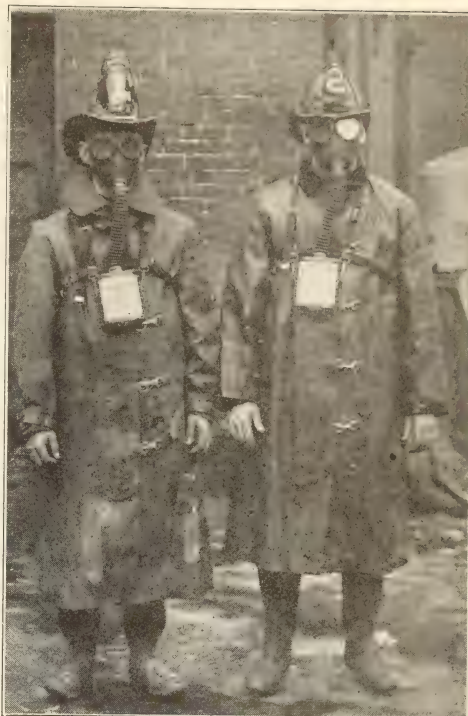
ENTERPRISE IRON WORKS
 1113 E. 24TH STREET, INDIANAPOLIS, IND.

According to C. Townsend, Superintendent, Water and Light Department, Perry, Okla., the city of Perry has two 180-horsepower Busch-Sulzer Diesel engines in service, driving 175-kilovolt-ampere generators. He states that the engines run smoothly and give no trouble. They are using about 200 to 300 gallons of fuel oil, depending on the load, and from 3 to 5 quarts of engine oil for the 24-hour day on both units, or 100 to 150 gallons of fuel oil on one unit, and 1½ quarts of engine oil per unit.

Hon. Charles Lauve, Mayor, Franklin, La., reports that they have been operating two 120-horsepower Diesel engines, and in the latter part of 1922 installed a third unit of 250 horsepower. The 120-horsepower engines have been in operation a little over five years, giving almost perfect service, and costing about \$56 a year for up-keep.

N. A. Kunkel, Superintendent, Municipal Water and Light Department, Anadarko, Okla., reports that they have two Busch-Sulzer engines of 180 brake horsepower each. These engines have been in operation about 1½ years and so far have had no repairs. They use the engines as auxiliaries to water-power, so that they are not in operation the full time. They have generated 274,650 kilowatt hours since they have been installed. During October, 1922, when the engines were the most used, they generated 37,750 kilowatt hours, using 4,160 gallons of 26-88 gravity fuel oil.

R. W. Callaway, Superintendent, Water and Light Department, Newkirk, Okla., gives the following operating sheet for his plant, from October 1, 1921, to September 30, 1922.



LaFRANCE SMOKE MASKS WHICH WERE SUCCESSFULLY TESTED BY THE NEW HAVEN FIRE DEPARTMENT

	FUEL OIL COST	LAHOR COST	LUB. OIL COST	MISCELLANEOUS	TOTAL COST
OCTOBER	\$ 161.00	\$417.75	\$ 25.60	\$25.10	\$ 629.45
NOVEMBER	143.00	3 90.00	33.93	49.20	616.13
DECEMBER	153.00	390.00	25.66	28.10	596.76
JANUARY	149.50	390.00	25.34	33.65	598.49
FEBRUARY	128.00	462.00	23.94	64.00	677.94
MARCH	124.17	390.00	23.20	32.98	570.35
APRIL	128.00	390.00	20.30	32.20	571.50
MAY	128.50	390.00	24.94	13.10	556.54
JUNE	133.00	438.00	22.04	28.50	621.54
JULY	140.00	390.00	19.72	28.50	578.22
AUGUST	151.00	510.00	23.80	28.00	712.80
SEPTEMBER	153.00	390.00	23.94	28.00	594.94
TOTALS	1692.17	4947.75	292.41	392.33	7324.26

	MAINTENANCE	EXTENSION	GENERAL	TOTAL EXPENSE	KW HRS PRODUCED	GROSS INCOME
OCTOBER	\$ 50.02	\$ 86.50	\$ 513.96	\$ 652.48	49,700	\$ 3001.25
NOVEMBER	160.77	175.10	359.66	695.52	49,300	2652.33
DECEMBER	162.60	126.00	545.49	834.29	52,570	2342.29
JANUARY	178.92	234.55	443.01	856.48	50,890	2803.40
FEBRUARY	74.38	62.76	426.91	563.91	44,390	2377.93
MARCH	33.75	33.75	446.03	513.33	46,050	2022.91
APRIL	49.75	86.75	278.50	417.00	41,080	2356.52
MAY	51.15	44.75	240.00	335.90	42,500	2645.68
JUNE	67.50	55.50	339.00	462.00	45,975	2188.30
JULY	63.50	58.50	297.00	419.00	42,190	2753.01
AUGUST	158.14	63.75	1046.82	1268.82	47,320	1992.30
SEPTEMBER	93.50	265.00	810.00	1168.50	50,879	2722.33
TOTALS	\$1144.18	\$1294.71	\$5746.34	\$8187.43	563,004	\$29862.86

Total Gallons Fuel Oil Used 70,397 Total Gross Income for the year \$ 29,862.86
 " " Lub. Oil Used 490 " Expenditures " " 15,511.69
 Gross Profit \$14,351.17

Cost per KW HR at the Switchboard \$0.01309
 Fuel Oil Cost \$1.00 per Barrel of 42 Gallons.

New Smoke Masks for New Haven

Fire Chief Rufus R. Fancher, of the New Haven, Conn., Fire Department, recently conducted exhaustive tests of the merits of

smoke masks. Under the supervision of Frank Blotchley, superintendent of motor apparatus, the masks were tested in a room in which were ammonia fumes, sulphur, and other materials forming gases so deadly that no human being could have survived their effect. Firemen wearing LaFrance masks made by the American-LaFrance Fire Engine Company, Inc., Elmira, N. Y., entered the room and remained for long periods. Chief Fancher was so pleased with the results of this test that he ordered 20 LaFrance masks, as illustrated, added to his equipment.

Dallas Sales Office Moved

The United States Cast Iron Pipe and Foundry Company has announced

that its Dallas sales office has been moved from the Scollard Building to Room 617, Magnolia Building. This office is in charge of Thomas W. Hanlon, Southwestern Sales Agent.

Around the world on native lake asphalt



El Prado, the "Show Drive" of Havana, Cuba, built with Bermudez (Native-lake) Asphalt in 1914. Still in splendid condition.



London ✓
Lille, France ✓
Versailles, France ✓
Frankfurt, Germany ✓
Bombay, India ✓
Johannesburg, S. Africa ✓
Rio de Janeiro, Brazil ✓
San Paulo, Brazil ✓
Washington, D. C. ✓
Havana, Cuba ✓
Mar Del Plata, Argentine Republic ✓
Mercedes, Argentine Republic ✓

Pounded ten years by heavy automobile traffic—and **not a cent needed for repairs!** That's the record of Bermudez Asphalt on El Prado, Havana's fashionable thoroughfare.

Bermudez Asphalt is a nature-made, world-old, ages-seasoned bitumen—not a by-product of the coke oven or of petroleum distillation.

Exposed for centuries to the rigors of tropic heat and tropic storms, Bermudez has weather and wear resistance built into it—is seasoned and toughened for long-lasting low-cost service on modern highways.

Millions of square yards of Bermudez highways—in all parts of the world and from 10 to 30 years old—have been kept in splendid condition at a cost of less than a cent per square yard per year.

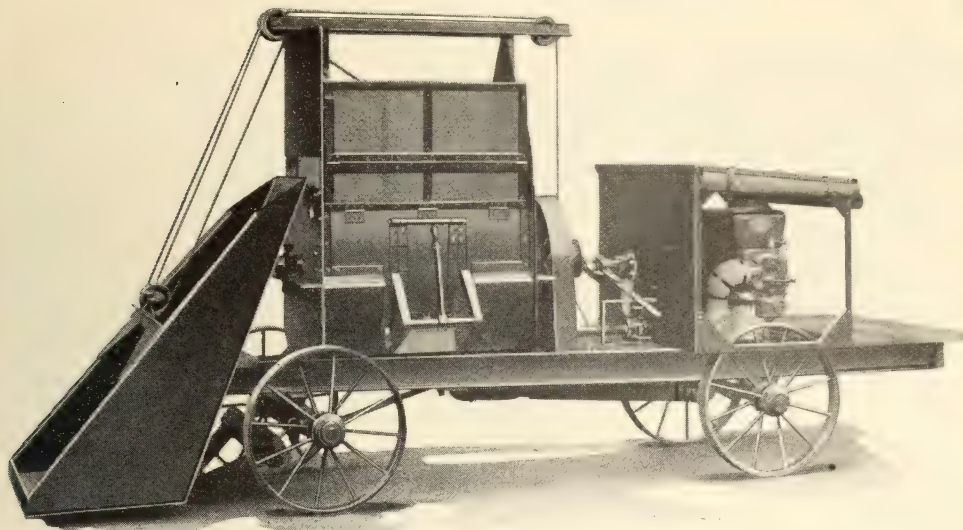
Write for complete service records of this remarkable ages-old, ages-tested material.

New York
Chicago
Pittsburgh

THE BARBER ASPHALT
COMPANY
PHILADELPHIA

St. Louis
Kansas City
Atlanta

BERMUDEZ
Road Asphalt
"IT STAYS PUT"



A MACHINE FOR THE ALMOST INSTANT PRODUCTION OF HOT SHEET ASPHALT MIXTURES

A Complete Small Portable Hot Asphalt Mixer

A process has recently been invented for making hot asphalt mixtures quickly, easily and economically in small quantities. The Iroquois rapid mixer, recently brought out by the Barber Asphalt Company, Land Title Building, Philadelphia, Pa., is a compact machine, in which sand, filler and Genasco liquid asphalt are used. The first two are placed in the skip and then dumped into the Iroquois rapid mixer while the agitating blades are revolving. The liquid asphalt and two pints of gasoline are added and lighted with a match, and in six minutes, when the flame has died out, there is a 4-cubic-foot sheet asphalt mixture hot and ready to spread. Asphaltic concrete and asphalt macadam mixtures can be made in a similar manner.

This method is made possible by the new patented Barber process in conjunction with the use of Genasco liquid asphalt, which provides a material that when flashed will burn until the lighter fractions are burned off, leaving a hot asphalt mixture of a temperature of 250 to 350 degrees Fahrenheit, with no danger of coking the material.

The rapid mixer in this process is a complete bituminous repair plant that can be quickly operated and easily moved from place to place, and requires small space for storage. The entire plant can be mounted on a small motor truck chassis, if desired. In addition, it needs only two men to operate, and eliminates entirely the costly overhead of the larger plant, in which steam must be kept up and many other costly details attended to. The mixer measures only 15 feet 3 inches in length and 4 feet 7 inches in width, with a shipping weight of 5,200 pounds. In addition to the mixer, the following small tools are supplied: two 8 by 6-inch tampers, two 10½ by 6½-inch smoothers, four asphalt shovels, two asphalt rakes, two asphalt cutters, and two rattan push brooms.

A roller is essential to insure proper compression of the various asphalt mixtures, and a 5-ton tandem is preferred. However, satisfactory compression may be secured by the use of a 1,000-pound hand roller with a compression of 50 pounds per square inch.

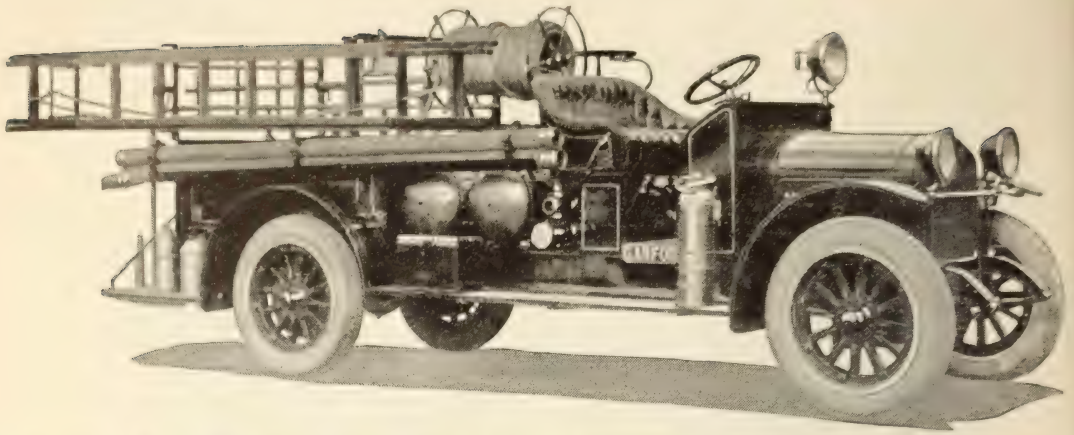
Simplex Valve and Meter Reports Good 1922 Business

The Simplex Valve & Meter Company, 5722 Race Street, Philadelphia, Pa., engaged in the manufacture and sale of meter registers for Venturi tubes, Pitot tubes and devices for controlling the flow of water in filter plants, as well as the manufacture of automatic air valves and combined air and vacuum valves, reports that while its sales cannot be considered a true barometer of business conditions the business of 1922 was the best in the history of the company.

The Simplex Valve & Meter Company is represented by George W. Stetson, 141 Milk Street, Boston, Mass.; W. K. Sowden, 280 Madison Avenue, New York City; John D. Hiles, Pittsburgh, Pa.; Maher Engineering Company, 30 North Michigan Boulevard, Chicago, Ill.; Fred H. Dorner, 548 Milwaukee Street, Milwaukee, Wis.; C. T. McFarland, 307 Mutual Building, Kansas City, Mo.; Water Works Supply & Equipment Company of San Francisco and Los Angeles; and Francis Henkin & Company, Montreal, Canada.

An Addition to the Foamite-Childs Family

The Foamite-Childs Corporation, Utica, N. Y., has announced that it has taken over the manufacturing and distributing activities of the Fire Gun Manufacturing Company, formerly at 115 Fourth Avenue, New York City, and that the New York district office is now located at 183 Varick Street, New York City.



Small Cities—Suburban Communities *Here Is Real Fire Protection*

HERE is a triple combination fire unit having double chemical tanks and rotary pump arranged so that it is possible to pump from chemical tanks into chemical hose, or, from well or other sources into chemical tanks.

This GARFORD apparatus is built for the fire protection problems that are too often hard to solve. It has a reliable pump, thoroughly run in and tested before shipping. Discharge valves open easily at high pressure. Relief valve is simple, positive and quick-acting.

The hose body of specially treated steel panels, is held rigid by angle steel frames, top, bottom and rear. The floor is of 4-inch hardwood

slats arranged to allow for hose ventilation and is removable to allow for greasing, adjusting, etc.

A real, all-round good fire job that offers real protection and reliability—a job your firemen will be proud to operate.

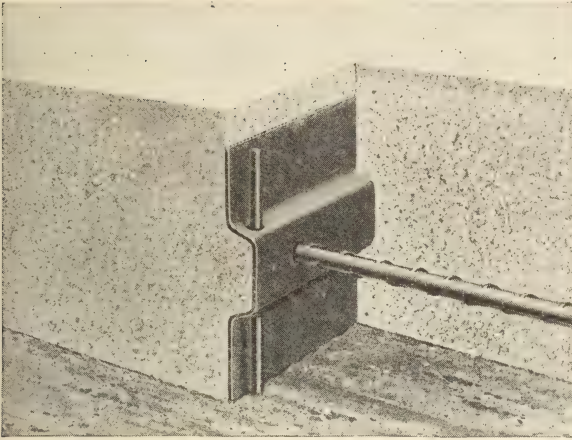
GARFORD engineers will be glad to explain the details of this and other GARFORD Fire Apparatus engineered especially for the user's requirements.

Write for Special Literature

The Garford Motor Truck Company, Lima, O.
Manufacturers of Motor Trucks 1 to 7½ Tons

GARFORD

DEPENDABLE TRANSPORTATION



CONTRACTION PLATE FOR TRANSVERSE JOINTS

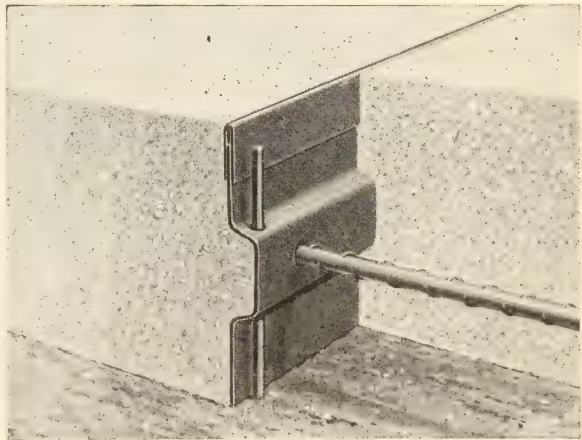
Providing Reinforcement and Contracting Joints for Concrete Roads

The advantages claimed for flat sheets for concrete road reinforcement fabric have been recognized by the states of New York, Pennsylvania, North Carolina, Ohio and Maryland in their specifications. It is claimed that the sheets may be more easily piled in the storage yards and on cars, that there is no time lost in straightening them for use in the road, and that greater accuracy of installation is made possible. So important are these items that road contractors declare flat sheets show a labor-saving of 20 to 30 per cent over the roll.

Truscon wire mesh is made in flat sheets by the Truscon Steel Company, Youngstown, Ohio, especially for reinforcing concrete roads. The main wires extending across the pavement are spaced 6 inches on centers. All standard types of Truscon road mesh are manufactured with the new Truscon staple joint, which makes the connection absolutely rigid and guarantees that the sheet will remain in form during all necessary handling. The sheets are manufactured with 13 main members spaced 6 inches in centers and with the cross-members a maximum space of 12 inches on centers. The sheets are 6 feet wide. This wide material makes a considerable saving in side laps. The flat sheets are cut in any desired length, so that no lapping is required across the width of the road. Although flat

sheet reinforcement is becoming universally specified for concrete roads, Truscon wire mesh may also be furnished in rolls with 18-inch cores.

The Truscon Steel Company has also brought out a contraction joint which provides a definite plane of weakness in the pavement that forms a straight crack upon contraction of the concrete. For transverse joints, the concrete is finished continuously over the steel plate, as shown in the illustration. When the joint opens to any extent, it is readily filled with bituminous material. The central joint is used to offset the lifting of the edges of the pavement from the subgrade, caused by surface contraction. It thus prevents cracking along the edges. It is purposely made wider to serve as a permanent traffic marker visible at all times. A removable cap plate is placed over the central contraction joint, and the concrete is finished to the top level of the cap as shown. After the concrete has taken its initial set, the cap is removed, the corners of the joint are rounded off and the opening filled with bituminous material. Truscon contraction joints are made of 16-gage plates. All plates are punched for $\frac{3}{8}$ -inch steel stakes 15 inches long, which are furnished with every joint. The plates do not interfere with the finishing machines. The dowel in the plate provides stiffness in handling, and the interlocking prevents one section from rising above the other.



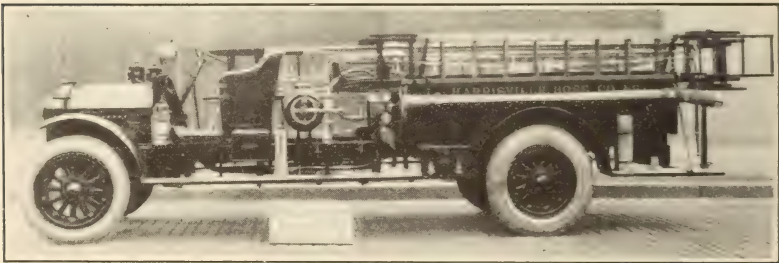
A TRUSCON CONTRACTION PLATE WITH REMOVABLE CAP PLATE FOR FORMING CENTRAL OPEN JOINT



Always Good~Now Better than Ever

ONLY the quality that brings constant, never-failing service to owners could have laid the foundation for Federal's present enviable position. It is one of the soundest companies financially with a dealer and service organization covering the country, backed by a 12 years' record of success.

Ask the Federal dealer near you to show you the truck best fitted to your hauling needs from the complete Federal line of 8 capacities.



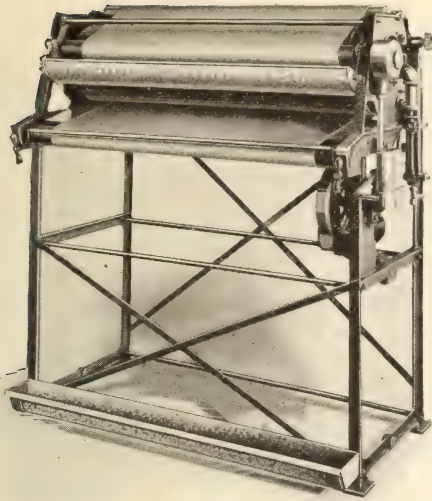
Fire department equipment must be thoroughly reliable. It was only after close investigation that this sturdy Federal was selected for the Harrisville Fire Department.

Its abundance of power and its dependability make the Federal truck ideal for city service. Ask for Folder S-10 describing the complete line.

Federal Motor Truck Company
Detroit, Michigan

Another

FEDERAL
"Means Another Satisfied User"



**BLUE-PRINTS AND PHOTO-PRINTS ARE DRIED
FREE OF WRINKLES ON THIS MACHINE**

A New Blue-Print Drying Machine

A new machine, said to present a number of unique features and to be adaptable to drying blue-prints, negative prints, and all other kinds of photographic prints, has just been brought out by The C. F. Pease Company, 851 N. Franklin Street, Chicago, Ill. It will be seen by the illustration that dripping-wet prints are drawn around the heated cylinder by means of an endless canvas belt and delivered dry and free from wrinkles into the receiving tray within easy reach of the operator's hands.

One of the features of the machine is the copper cylinder which heats quickly and retains its heat and to which the prints will not adhere; they peel off automatically without the use of a finger arrangement or other special attachment. It is said that with this dryer, dripping-wet prints may be started in and run through the machine at the rate of 8 to 9 feet a minute. This is accomplished partly by the brass roll over which the prints pass before entering the machine. The roll acts somewhat as a squeegee. The traveling apron on which the wet prints are placed is sloped slightly downward, allowing all the surplus water to drip into a tray provided below the machine.

The heat within the machine is regulated by a thermostatic control when the cylinder is heated with gas. When necessary to heat the cylinder with electricity, it is not possible to use this thermostat, but a series of switches is provided enabling the operator to throw in a sufficient amount of current to heat the cylinder to the proper temperature very quickly, after which it may be kept there by proper adjustment of the switches.

Another feature of this machine is the ease with which the traveling canvas belt may be kept centered. The same arrangement which has proved successful in the Peerless continuous

blueprinting machine is used, and, in addition, a hand wheel on either side of the belt is within easy reach of the operator and enables him to make a slight adjustment when necessary, thus keeping the belt properly centered at all times, preventing it from becoming wrinkled or frayed at the edges. The machine is suitable for paper 42 inches and narrower, and any number of small prints or photographs may be run in at the same time.

Expanding Heil Service

The Chicago offices of the Heil Company, of Milwaukee, Wis., have been moved from their former location, 2718 Wentworth Avenue, to 2422-26 Cottage Grove Avenue. The new service and sales rooms of their Chicago distributors have three times as much floor space as the old offices. Twenty men are employed in this service station to mount hoists, body, and tank equipment. According to H. F. Kneppreth, Manager of the Chicago branch, there is a considerable demand for this truck equipment and hydro-hoists in Chicago. A daily truck service has been established from the Heil factory in Milwaukee to Chicago, enabling customers to get practically immediate delivery of their orders.

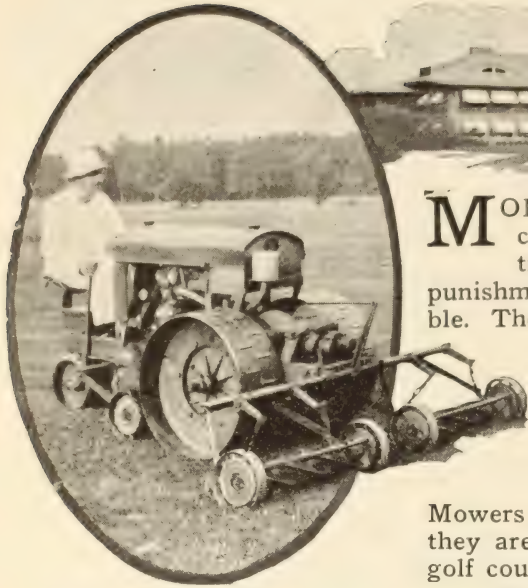
The New York distributing station of the Heil Company, the Motive Parts Corporation, has moved from 136 West 55th Street to new offices at 796 Tenth Avenue, near 43rd Street, New York City.

The H. P. Wilson Company, of Denver, Colo., has recently become Heil distributor for that district. The offices of the Wilson Company are located at 17th and Blake Streets, Denver, Colo.

Street Lighting Installations

Hexagonal and fluted street lighting posts made by the Drake Manufacturing Company, Friendship, N. Y., have recently been installed at Erie, Pa., and at Niagara Falls, Olean, Jamestown, Buffalo, Lancaster, Elmira, Friendship, Dunkirk, Batavia, and Geneseo, N. Y.

The main street of Geneseo is very wide and lends itself particularly well to the installation of boulevard lighting. In September, 1922, the Geneseo Gas Light Company, which furnishes the electric power for the town, purchased and installed 50 Drake lighting standards the full length of Main Street and on part of adjacent streets. The distance between the standards on most of the streets varies from 150 to 200 feet in staggered positions, the average being 140 feet on Main Street. The lamp fixtures in use are General Electric Form 8 Novalux units with rippled glass globes and canopies. Refractors were not considered necessary with these fixtures. On Main Street, 400-candle-power lamps were used, and on other streets, 250-candle-power lamps. The total mileage covered by this White Way system is about 1¼ miles. The standards are of the hexagonal style, 11 feet high, and are painted battleship gray.



MONTH after month, throughout the grass-cutting season, the sturdy "Bulldog" cutting units on Ideal Mowers withstand punishment in a way never before thought possible. These units—made in our own factory of special steels, with Timken bearings and extra-heavy throughout, are the most rugged cutters ever developed.

From every standpoint, acreage, labor economy, freedom from repairs and service available, Ideal Triplex Mowers are supreme in their field. That's why they are replacing others on leading American golf courses, estates and parks.

Write for proof of these strong statements.

Ideal Power Lawn Mower Co. 400 Kalamazoo St.
R. E. OLDS, Chairman Lansing, Michigan
 New York, 13-19 Hudson St. Chicago, 11 East Harrison St.
Dealers in all Principal Cities

IDEAL Power Lawn Mowers

(41)

Speed, Accuracy, Economy and Better Lawns

Performance on a dollars and cents basis is the bid this wonderful power lawn mower makes for the job of keeping your city lawns beautiful. The 4-Acre does the work of four or five men with hand mowers. Cuts four to five acres a day at a fuel cost of less than 40 cents a day.

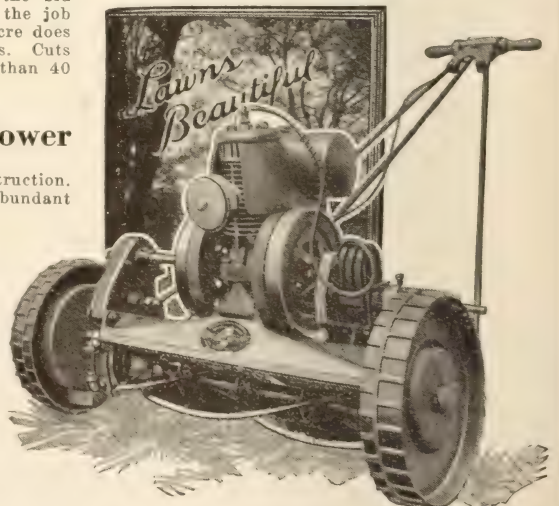
The 4-Acre Power Lawn Mower

is the highest development of lawn mower construction. Works where no other mower will. Has abundant power for hilly ground and tough spots. It is easy to guide, runs anywhere close to trees, shrubs, flower beds, etc. Built with the mechanical accuracy of an Automobile—sturdy as a tractor.

Write for Catalogue "Lawns Beautiful" and learn how to cut your cost of lawn upkeep and make your lawns a source of city pride. Ask for literature on our Power Putting Green Mower for your municipal golf course.

Jacobsen Manufacturing Co.
 Dept. E., Racine, Wis., U. S. A.

Adopted by leading
Park Superintendents
as Standard Equipment



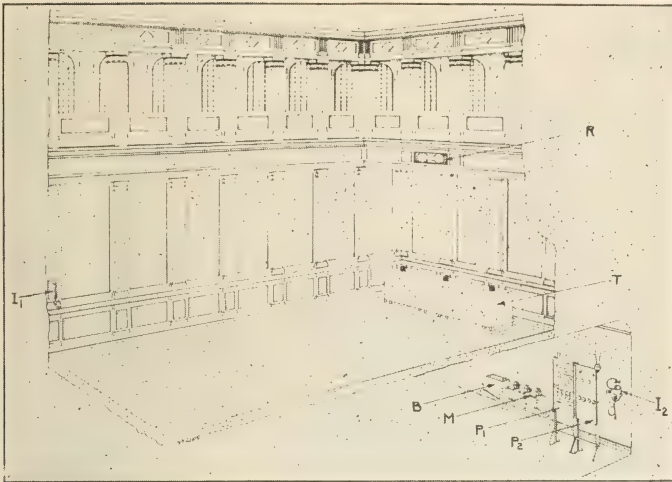


DIAGRAM OF BANQUET HALL OR AUDITORIUM EQUIPPED WITH
LOUD-SPEAKING DEVICE

T. Speaker's table with microphones. B. Microphone battery. M. Motor generator sets. P1. Amplifier panels, meter panels, microphone and receiver control panel. P2. Power panel. R. Projectors concealed in balcony. I1. Inter-phone set for communicating with control room. I2. Inter-phone set for communicating with observer

Voice-Amplifying System Used Indoors

"Gather up close, ladies and gentlemen," the pet phrase of the ballyhoo, seems destined to pass into disuse. The usual scramble for front seats at Chatauquas, municipal lectures, concerts and entertainments of all kinds also seems likely to follow this phrase into oblivion, for the voice-amplifying system developed by the Western Electric Company has made every seat a front seat. There is no longer need to sit with hand cupped behind the ear, straining every nerve to catch the speaker's words.

This voice-amplifying system, the outdoor uses of which were fully described in the January, 1923, issue of *THE AMERICAN CITY*, uses a microphone or transmitter which is placed on the speaker's stand and catches the speaker's voice. It is so sensitive that he may stand at a distance of eight feet from it. Over his head or hidden in the decorations of the auditorium is a cluster of projectors or horns which distribute the sound, amplified many times, to all parts of the hall. In the basement or other secluded corner is installed the amplifier with its control apparatus.

A number of the large hotels in New York, the Waldorf-Astoria, the Astor, the Commodore and the McAlpin, have added this system to their permanent equipment. It is installed in the grand ballroom in each case, for the use of large assemblies at banquets and in convention. Among the notable events at the Hotel Commodore was the American Bankers' Association Convention, during which the speeches, made in a conversational tone of voice, were heard by everyone in the ballroom, which is 175 feet long by 50 feet wide.

When Clemenceau came to this country on

his pilgrimage of persuasion, every effort was made to conserve the veteran statesman's physical strength. For his initial address at the Metropolitan Opera House, New York, this auditorium was equipped temporarily with the Public Address System. The address was delivered in perfect ease and was heard distinctly in every part of the great opera house. At the Auditorium, Chicago, he was likewise aided by this remarkable system. While in that city, Monsieur Clemenceau made public through Colonel Stephen Bonsal, who acted as his aide, this statement: "The amplifying apparatus which I used in Chicago and in New York was simply miraculous. It opens up new fields of oratory and enables me to reach portions of my audience to whom I could never hope to carry my mes-

sage without its aid." The same system was used at the Academy of Music, Philadelphia.

At the opening of the new Frankford Elevated Railroad in Philadelphia this same system mounted in a motor truck made the speeches of T. Hampton Moore, Mayor of that City, audible to thousands of listeners gathered in the streets at Bustleton and Frankford.

This truck made a record-breaking trip from New York to Columbus, Ohio, through one of the worst blizzards of the winter to enable 10,000 people assembled near the Capitol steps to hear every word of Governor Victor Donahy's inaugural address.

New District Engineer for Brick Association

The Eastern Paving Brick Manufacturers Association, Lincoln Building, Philadelphia, Pa., has announced that A. S. Mirick, formerly with the New York State Highway Commission, and with the state of Nebraska as Chief Road Engineer, has been appointed District Engineer for Western Pennsylvania, with headquarters at Pittsburgh, Pa.

William C. Perkins is Chief Engineer of the Eastern Paving Brick Manufacturers Association in Philadelphia, J. E. Griffin is Eastern District Engineer, at the Philadelphia office, and J. Macklem Perkins is Northern District Engineer, with offices at Towanda, Pa.

Morley Joins Ahrens-Fox

The Ahrens-Fox Fire Engine Company, Cincinnati, Ohio, has announced that George E. Morley, who has been active in fire department work for the last 22 or 23 years, has become associated with its sales department.



Quality that's real economy

Enduring service can be expected from equipment only when quality has been put before any other consideration. This fact is too often overlooked. The name "Master-Made" on School Cafeteria Equipment is the hallmark of the finest that is made. It is our guarantee of the highest standard of excellence.

Planning and consultation service are offered without fee or obligation. Send for our School Cafeteria Portfolio AJ93—it will be of real help to you.

ALBERT PICK & COMPANY

208-224 WEST RANDOLPH ST., CHICAGO, ILLINOIS

COMPLETE OUTFITTERS OF SCHOOL CAFETERIAS

A Distinctive House Number

A new, attractive design of house number, known as the Premax De Luxe house number, has recently been offered by the Niagara Metal Stamping Corporation, Niagara Falls, N. Y. It is made of solid aluminum, the figure itself being 2½ inches high and deeply impressed into the heavy plaque. The edges of the plaque are beveled to form a border or frame, and the



AN EASILY READ NUMBER

figure is finished in satin silver, which stands out against the background of black enamel.

It has been found that this number is unusually legible even after dusk and under relatively poor lighting conditions. The manufacturers claim a particular advantage in that there is no separate frame or holder to collect dirt, and since the whole is of solid aluminum it cannot break or rust and discolor the building to which it is attached.

Committees for Detroit Water-Works Convention

Edgar J. Bутtenheim, President of THE AMERICAN CITY, and President of the Water Works Manufacturers Association, has announced the following committees for the Detroit Convention of the American Water Works Association and the Water Works Manufacturers Association, May 21-25:

Transportation, Walter H. Van Winkle, Chairman, Water Works Equipment Company, 50 Church Street, New York City; T. C. Clifford, Pittsburgh Meter Company, East Pittsburgh, Pa.; Raymond Simon, R. D. Wood Company, Worcester, Mass.; Joseph Ivy, American Cast Iron Pipe Company, Kansas City, Mo.; H. Brown, Neptune Meter Company, Chicago, Ill.; H. M. Lofton, Columbian Iron Works, Chattanooga, Tenn. Entertainment, Burt Hodgman, Chairman, National Water Main Cleaning Company, 50 Church Street, New York City; William Sherwood, Vice-Chairman, Hersey Manufacturing Company, New York City; John H. Stutt, E. I. du Pont de Nemours & Co., Philadelphia, Pa.; John F. Reagan, Neptune Meter Company, New York City; George Smith, Michigan Valve & Foundry Company, Detroit, Mich.; Vincent McCarthy, R. D. Wood & Company, Chicago, Ill. Exhibit, George McKay, Jr., Chairman, Leadite Company, Land Title Building, Philadelphia, Pa.; J. D. Capron, U. S. Cast Iron Pipe & Foundry Company, Philadelphia, Pa.; C. C. Behney, Simplex Valve & Meter Company, Philadelphia, Pa. Golf, M. F. Tiernan, Chairman, Wallace & Tiernan Company, Newark, N. J.; Karl Mann, Fire and Water Engineering, New York City; E. Case, Pitometer Company, New York City; John Sosnowski, Board of Water Commission-

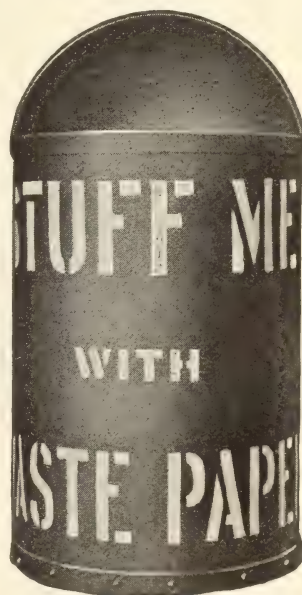
ers, Detroit, Mich.; R. W. Conrow, Central Foundry Company, New York City. Press, Isaac Holbrook, Chairman, *Engineering News-Record*, Tenth Avenue at 36th Street, New York City.

Hazen & Whipple Move Offices

Hazen & Whipple, consulting hydraulic and sanitary engineers, have moved their offices to the building located at 25 West 43rd Street, New York City.

Waste Paper and Rubbish Cans

Waste cans that are used on city streets to be filled with such refuse as the passer-by may toss in, must be made of high-grade material and of good workmanship to stand the inevitable rough usage to which they are subjected. The Cleveland Wire Spring Company, Cleveland, Ohio, manufactures the waste can illustrated, of heavy-gage sheet steel with a rein-



A HOODED REINFORCED RUBBISH CAN

forced hood, thus making it a strong unit and better than if constructed of wood or fibre, because of the fire risk. These cans are made 20 inches in diameter, 30 inches deep and 38 inches from the top of the hood to the ground. They are of black steel, painted both inside and outside in any color desired, to harmonize with near-by objects.

Several thousand of these cans are used in Detroit and is a number of the smaller cities in the East and in Ohio.



HOLLOWSPUN

LIGHTING STANDARDS



*Residential Street Lighting in Milwaukee, Wis.
Described in detail in "Hollowspun Standard" No. 4.*

A PPEARANCE is a matter of taste. What is pleasing to one person may not be to another. How then can one safely select lighting standards for an ornamental lighting installation, with any assurance that their appearance will please the general public?

A well-known artist, when confronted with this question, outlined five basic principles by which to gage the aesthetic fitness of any standard:

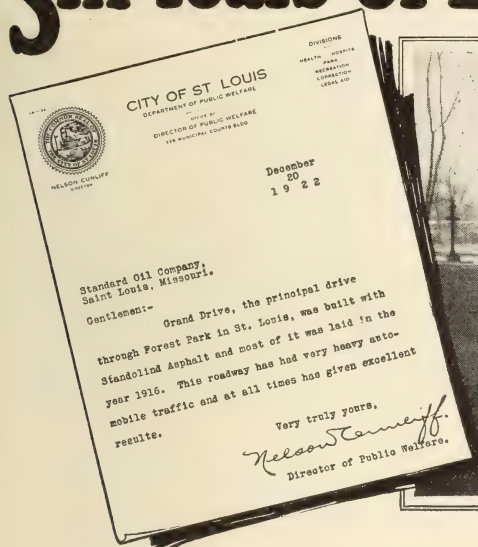
- (1) Its proportion in relation to the width of street, height of buildings, size of trees, etc.
- (2) Its color, as compared with the tone that will best harmonize with road surface, sidewalks, etc.
- (3) The simplicity of its design and the absence of unnecessary ornamentation.
- (4) The degree to which its surface refracts light, breaking it up in a way to strike the eye as soothing rather than dull or glary.
- (5) Its ability to retain its pleasing qualities indefinitely with a minimum of attention.

Try these or any other tests on a Massey Hollowspun standard.

MASSEY CONCRETE PRODUCTS CORPORATION
Peoples Gas Building Chicago



Six Years of Excellent Results



Stanolind Paving Asphalt in St. Louis

THE advantages of using Stanolind Paving Asphalt are best told by one who has enjoyed actual experience with it.

In the above letter, Mr. Nelson Cunliff, well known in the middle west as one of the leading public officials of St. Louis, Mo., sets forth several reasons why it is to your advantage to pave roads and streets, for which you are responsible, with Stanolind Asphalt.

Forest Park Drive was built in 1916 with asphalt macadam (Penetration method), using Stanolind Paving Asphalt "C". This boulevard is one of the main arteries of traffic in

St. Louis and is subjected to extremely heavy automobile traffic; yet note what Mr. Cunliff says about the excellent results it has given.

The photograph was taken in December, 1922, six years after the road was built, but, as the picture clearly indicates, it is now in as good condition as the day it was finished.

And it will still be in as good condition six years hence, for *exceptional durability* is one of the outstanding characteristics of roads paved with Stanolind Paving Asphalt. This factor, together with the low maintenance costs of such roads, makes Stanolind Asphalt the ideal road material.

We have recently issued a booklet which tells the latest methods of constructing and maintaining bituminous pavements. It will be sent to you free upon request.

STANDARD OIL COMPANY

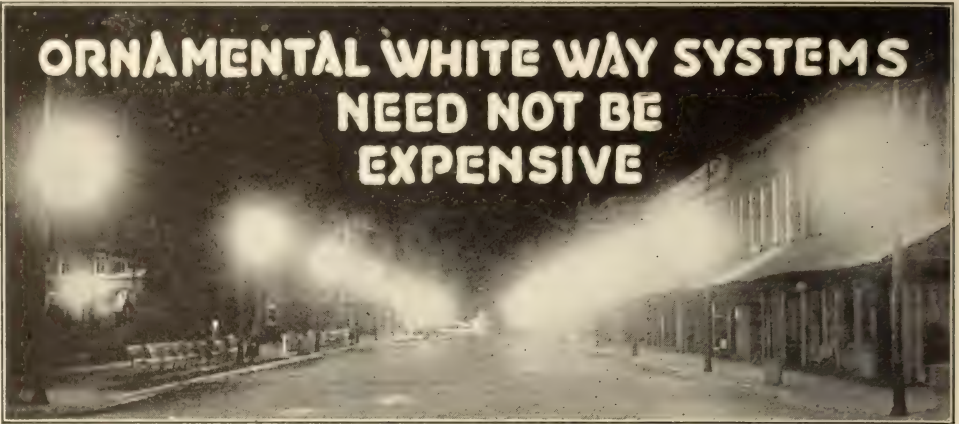
(INDIANA)

910 S. Michigan Avenue

CHICAGO, ILLINOIS

When writing to Advertisers please mention THE AMERICAN CITY.

ORNAMENTAL WHITE WAY SYSTEMS NEED NOT BE EXPENSIVE



ARE YOU IN URGENT NEED OF ORNAMENTAL STREET LIGHTING?

Numerous cities realize the need of an ornamental White Way system to keep them abreast of the times and convert their thoroughfares into attractive, well-illuminated streets at night. Lack of finances often prevents such installations because of the expense of the necessary equipment. The Elreco combination pole, as shown, recently installed in Bartow, Fla., solves this difficulty, as it is one complete unit, carrying the necessary overhead wires, including the lighting circuit, has an ornamental base and bracket and a General Electric Form 8 Novalux lighting unit, and permits the removal of unsightly wooden poles from the curb line.

Our latest literature tells more of the economy of Elreco combination poles

THE ELECTRIC RAILWAY EQUIPMENT CO.

CINCINNATI, OHIO

30 CHURCH ST., NEW YORK





*Civic life, as human life,
is fostered by light*



The Greater Light that Rules the Night

For safety, for beauty, for recreation, light must be provided in abundance. The great allies of the street lights are

G-E Floodlighting Projectors

A flood-lighted monument or public building is given more hours of beauty—flood-lighted playgrounds and bathing beaches give added hours of recreation—flood-lighted traffic centers, industrial plants, construction work and wharves bring the speed and safety of day-light to the hours of night.

Flood-lighting, a modern development, represents one of the most charming and useful adaptations of light to public needs.



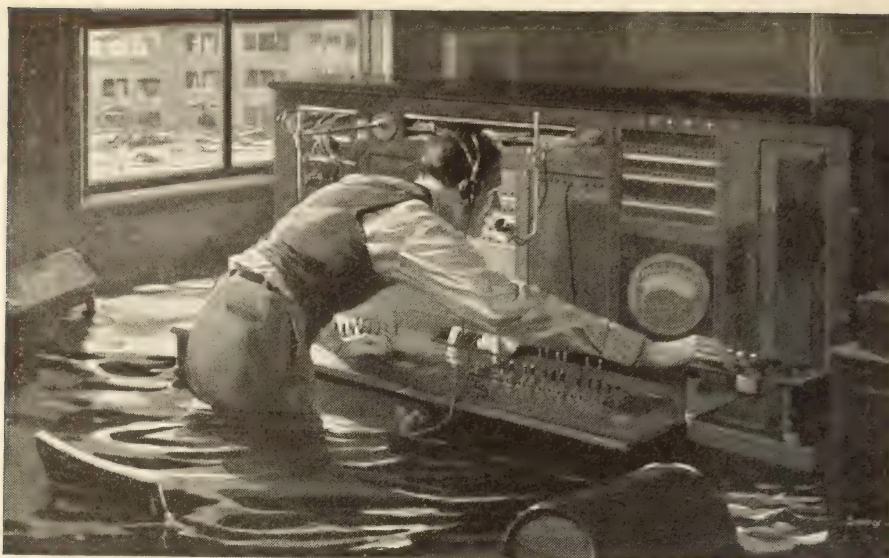
The General Electric Company is a pioneer in the flood-lighting field. Experienced in the design and use of this method of illumination its lighting specialists will willingly aid and advise you in your flood-lighting problems

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

35C-110C



Why they stick

On the ground floor of the telephone building a man worked at the test board. It was night; flood had come upon the city; death and disaster threatened the inhabitants. Outside the telephone building people had long since sought refuge; the water mounted higher and higher; fire broke out in nearby buildings. But still the man at the test board stuck to his post; keeping up the lines of communication; forgetful of self; thinking only of the needs of the emergency.

On a higher floor of the same building a corps of telephone operators worked all through the night, knowing that buildings around them were being washed from their foundations, that fire drew near, that there might be no escape.

It was the spirit of service that kept them at their work—a spirit beyond thought of advancement or reward—the

spirit that animates men and women everywhere who know that others depend upon them. By the nature of telephone service this is the every-day spirit of the Bell System.

The world hears of it only in times of emergency and disaster, but it is present all the time behind the scenes. It has its most picturesque expression in those who serve at the switchboard, but it animates every man and woman in the service.

Some work in quiet laboratories or at desks; others out on the "highways of speech." Some grapple with problems of management or science; some with maintenance of lines and equipment; others with office details. But all know, better than any one else, how the safe and orderly life of the people depends on the System—and all know that the System depends on them.

"BELL SYSTEM"

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES**

One Policy, One System, Universal Service, and all directed toward Better Service

When writing to Advertisers please mention **THE AMERICAN CITY**.



UNION METAL LAMP STANDARDS

Protect Your Citizens Against Careless Driving

Heavy increase in motor traffic during the past ten years has emphasized the demand for safe and dependable lamp standards:—for standards that take the punishment and absorb the shocks thrust upon them by curb collisions.

Deaths, accidents and damage suits due to falling lamp posts can be avoided by the installation of Union Metal Lamp Standards.

They have patented pressed metal shafts, together with steel anchor and tie rods extending from concrete sub-base to topmost part of the standard. In case of severe impact, Union Metal Lamp Standards will bend, but will not break and fall heavily to the sidewalk.

Safety in ornamental street lighting has become so important that many city officials insist upon the installation of Union Metal Lamp Standards and thereby avoid serious accidents that are daily occurring throughout the country.

Send for complete catalogue of Street, Park and Boulevard Designs.



*Auto Struck Light
Standard at 6th St.
No Injury to Driver
or Pedestrians
(Pole easily
Repaired)
J. M. No. 4444*

The UNION METAL MANUFACTURING CO.
Canton Ohio

National Steel

Service—Immediate Shipments

Over a Half Million Square Yards in Our Warehouse

Increased manufacturing and warehousing facilities enable us—the world's largest manufacturers of welded steel fabrics—to render prompt service.

Phone, write or wire our nearest office

National Steel Fabric Co.

Subsidiary of Pittsburgh Steel Co.

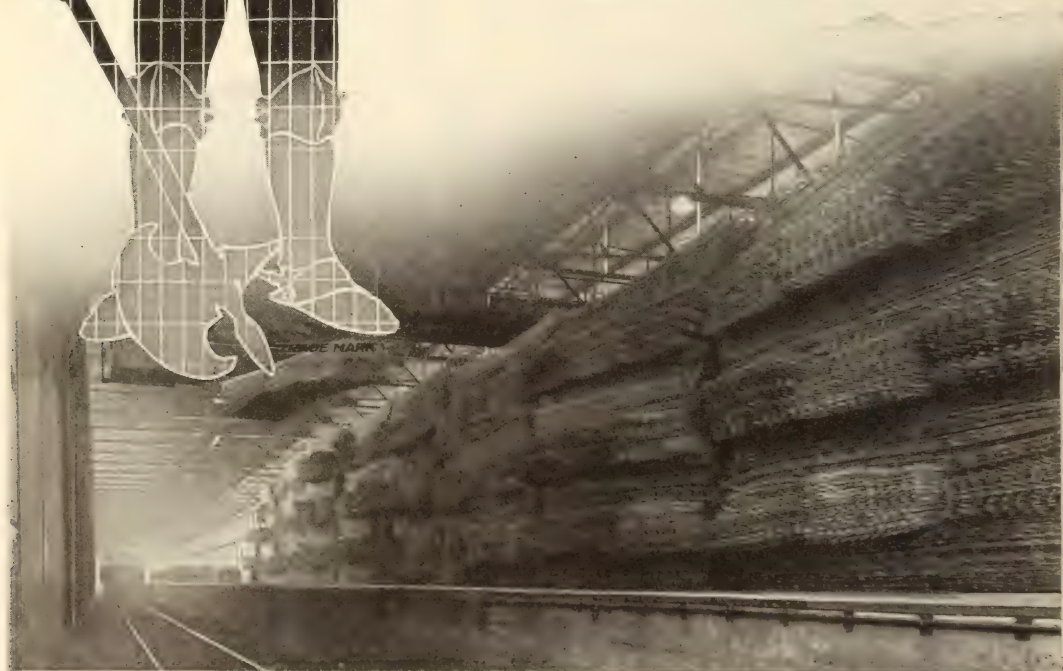
708 Union Arcade

Pittsburgh, Pa.

OFFICES

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Equitable Bldg.
Bart-Falk & Co. Call Bldg.
Loew's State Bldg.
Harrison Bldg.
D-20 Railway Exch. Bldg.
604 Walton Bldg.



NATIONAL STEEL CO. FABRIC CO.

Subsidiary of PITTSBURGH STEEL CO.

UNION ARCADE BUILDING

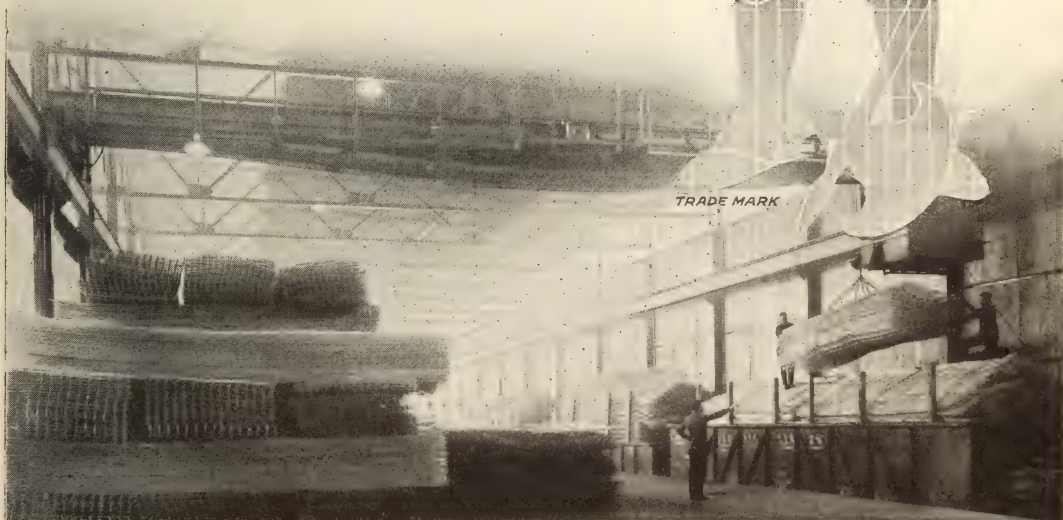
PITTSBURGH, U.S.A.

Road Fabric

National Steel Fabric Standard Road Styles

Style	Main Wires			Secondary Wires			Approximate Weight 100 Sq. Ft.
	Spacing	Gauge	Area	Spacing	Gauge	Area	
BF 88	4	8	.062	12	8	.021	29.6
BF 77	4	7	.074	12	7	.025	35.4
BF 66	4	6	.087	12	6	.029	41.6
BF 55	4	5	.101	12	5	.034	48.4
CF 77	6	7	.049	12	7	.025	27.0
CF 66	6	6	.058	12	6	.029	31.8
CF 55	6	5	.067	12	5	.034	37.0
CF 44	6	4	.080	12	4	.040	43.8
CF 33	6	3	.093	12	3	.047	51.0
CF 06	6	0	.148	12	6	.029	65.3
CC 88	6	8	.041	6	8	.041	30.0
CC 77	6	7	.049	6	7	.049	35.7
CC 66	6	6	.058	6	6	.058	42.0
CC 55	6	5	.067	6	5	.067	48.8
CC 44	6	4	.080	6	4	.080	57.8

Other styles (various spacings and gauges of wire) can be furnished for all concrete reinforcing purposes such as roads, buildings, reservoirs, pipe, etc.



NATIONAL STEEL CO

Subsidiary of PITTSBURGH STEEL CO

UNION ARCADE BUILDING

PITTSBURGH, U.S.A.

General Motors Trucks



Four years ago the Great Northern Power Company of Minnesota which supplies electricity for Duluth, Minn., purchased its first G M C Truck. Since that time every new unit of motor truck equipment has been a G M C Model. The G M C service facilities in parts and service men in that section as well as every other section of the U. S. A. insure uninterrupted and profitable truck performance.

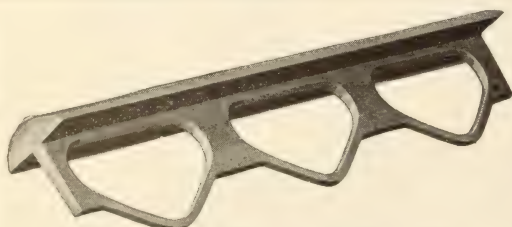
G M C chassis list at the factory as follows; 1-ton, \$1295; 2-ton, \$2375; 3½-ton, \$3600; 5-ton, \$3950; tax to be added.

GENERAL MOTORS TRUCK COMPANY

Division of General Motors Corporation

Pontiac, Michigan

DEALERS AND SERVICE STATIONS IN MOST COMMUNITIES



1½" Protection Edge for Concrete Curbs

Owing to their rigidity and convenient size, Truscon Curb Bars are easy to handle and install. Concrete curbs protected with Truscon Curb Bars make the best and most economical curbing for either business or residential streets.

TRUSCON EDGE PROTECTOR

The Truscon Edge Protector follows the same general principle of design and manufacture as Truscon Curb Bars, differing only in that it provides a 1" protection edge instead of 1½". The smaller protection is entirely ample for many conditions such as in the exposed corners of walls, pilasters, columns, platforms and sidewalks.

TRUSCON STEEL COMPANY

YOUNGSTOWN, OHIO

Sales Offices in Principal Cities

TRUSCON CURB BARS

Truscon Curb Bars provide a substantial protection and reinforcement for concrete curbs. They are manufactured from rolled steel sections under powerful machinery.

The plate and anchorage are formed from the same section of steel insuring uniform distribution of shocks throughout the concrete and preventing the loosening of the plate. The anchorage is positive and is entirely independent of adhesion of the concrete. Owing to the open spaces in the anchorage, there is no separating or splitting of the concrete at the corners.



1" Protection Edge for Exposed Corners.

DOWFLAKE

CALCIUM CHLORIDE

The Best Method of Curing Concrete

Spread DOWFLAKE over the concrete surface instead of earth or water ponding. DOWFLAKE keeps the surface damp by absorbing several times its weight in moisture and holds the moisture in contact with the concrete. DOWFLAKE used in this way effects a quicker cure and is applied with less labor and in shorter time. Two pounds to the square yard does the business.

DOWFLAKE also hastens the set and also lowers the freezing point, making it desirable for cold weather. Use DOWFLAKE and have concrete roads ready for traffic ten to twenty-five days sooner. Write for our book—"HOW TO CURE CONCRETE."



And it Solves the Dust Problem, Too

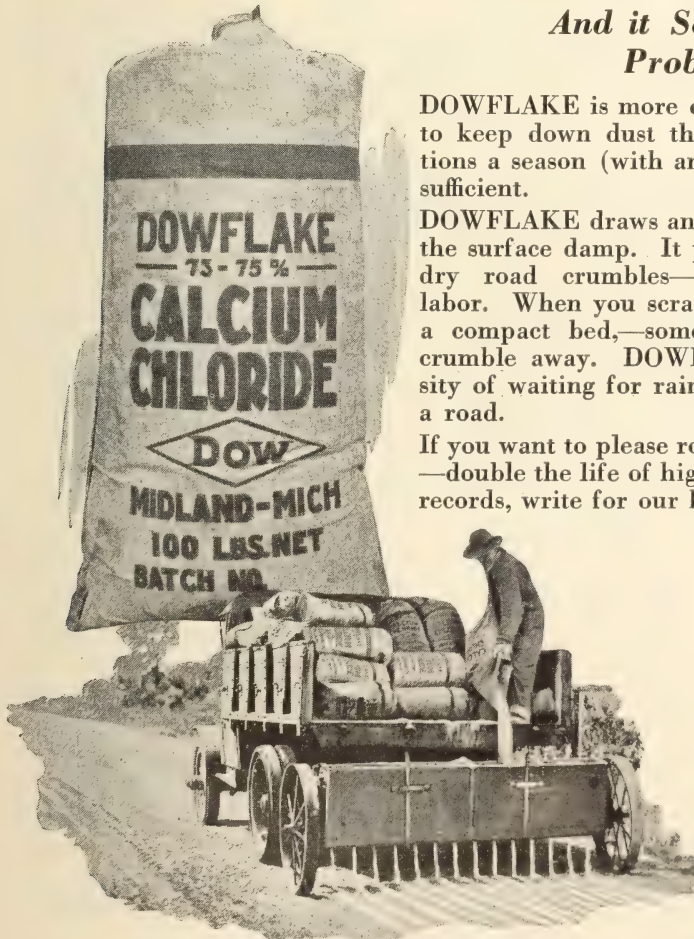
DOWFLAKE is more effective and more economical to keep down dust than sprinkling. Two applications a season (with an ordinary lime spreader) are sufficient.

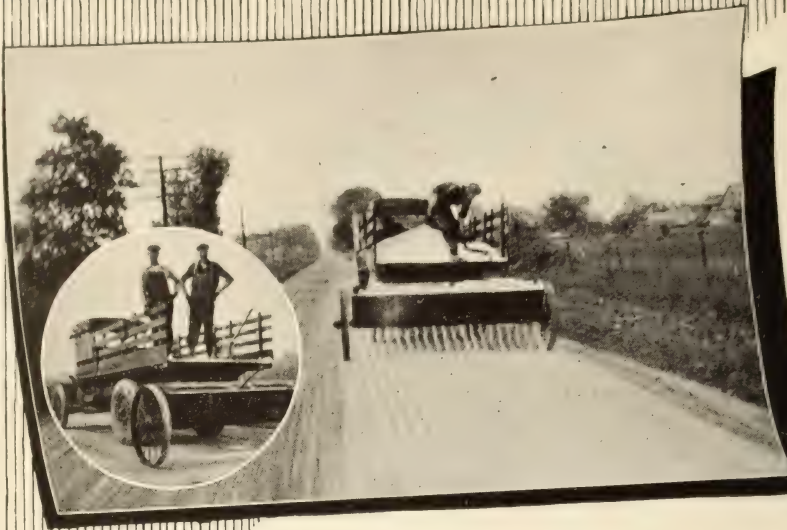
DOWFLAKE draws and holds moisture. This keeps the surface damp. It packs and holds the road. A dry road crumbles—requires more maintenance labor. When you scrape up a moist road you have a compact bed,—something that doesn't blow or crumble away. DOWFLAKE eliminates the necessity of waiting for rain before scraping or dragging a road.

If you want to please road users and property owners—double the life of highways and make new low-cost records, write for our big 40-page illustrated book—"HOW TO MAINTAIN ROADS." It's chock full of practical information and facts that will show you just how and why the least expensive type of good highway is a gravel road treated with DOWFLAKE. Send for your copy now.

The Dow Chemical Co.

Midland, Mich., U. S. A.
90 West St., New York City





Solvay is very easily handled and applied to the road. Ordinary laborers do the work perfectly.

Here's a Road With a Firm Elastic Surface

It's a Solvay Road. Wherever you find a durable, dustless road with a firm, smooth, elastic surface, it is most likely to be a road which has been treated with

SOLVAY

CALCIUM CHLORIDE

"The Natural Dust Layer"

Solvay Calcium Chloride owing to its lack of objectionable features such as odor, tracking, discolorization, etc., is particularly adapted for use on roads where there is considerable pedestrian traffic.

This clean chemical salt is the ideal dust layer, surface binder and weed killer. It will not stain clothing; neither will it affect rubber or the varnish of the automobiles or wagons using the road.

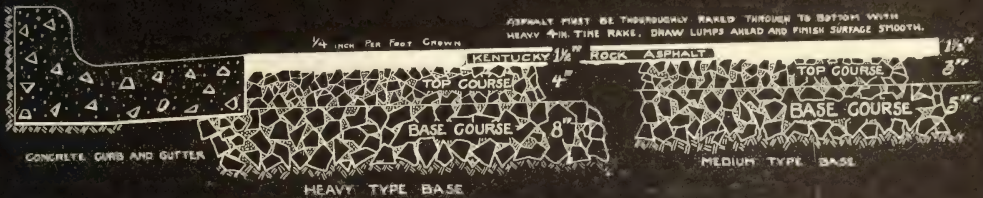
Thirty-four convenient distributing points permit prompt delivery with minimum transportation charges.

The new Solvay Road Booklet will be sent free on request.

SEMET-SOLVAY CO., Syracuse, New York

NEW CONSTRUCTION

SURFACE 1½ INCHES KENTUCKY ROCK ASPHALT
 TOP COURSE 4 INCHES CRUSHED LIMESTONE
 BASE COURSE 8 INCHES CRUSHED LIMESTONE



PART SECTIONS SHOWING METHODS OF CONSTRUCTION

Asphalt Pavements at Reasonable Cost

Kentucky Rock Asphalt builds the finest sheet asphalt pavements at a cost comparable with that of lower and less desirable types. The great saving is due to the fact that the material is ready mixed and laid COLD on any standard base sufficient to carry the traffic.

No costly mixing plant, no asphalt experts are needed. No special binder course is required. Shovels, rakes and roller is the only equipment necessary.

The finished Kentucky Rock Asphalt surface is smooth and resilient. It does not crack, roll, buckle or bleed.

Above is shown a typical cross section of Kentucky Rock Asphalt surface on two-course rolled stone base. This construction has been extensively used with great satisfaction and, at a considerable saving in regions where limestone is available. Our engineering department has prepared typical plans and specifications for various types of construction and reconstruction, which will be sent to engineers and officials on request.

Kentucky Rock Asphalt is recognized as one of the standard light type pavements. It has been included in the specifications of ten states for heavy traffic roads built under Federal aid. Scores of cities and counties have adopted it for new construction, reconstruction and maintenance.

The "Kyrock" brand of Kentucky Rock Asphalt is produced only by this company—in its plant at Kyrock, Ky. Back of this trade mark is the largest and oldest producer of Kentucky Rock Asphalt. Kyrock insures responsibility, ability to deliver and uniformity of material.

Write for booklet D-4.

Kentucky Rock Asphalt Co., Inc.

712-718 Marion E. Taylor Bldg.,

Louisville, Ky.





"It's a Summer"

The Mayor talked to the engineer,
As the engineer looked at him,
"Remember the days at the old swimmin'
hole?"

With Tom, Dick, Harry and Jim?
Remember the craze we had for tops,
How we matched, compared and noted;
Remember the buys, the trades and swaps,
How the best were the tops you 'toted'?"

The engineer answered His Honor,
As the Mayor looked up at him,
"On 'tops' I still am a gonner,
I am hunting with vigor and vim
It is 'road tops' I seek, scientific,
The ones that will meet every test,
And I find Warrenite-Bithulithic,
Of all 'tops' is the best."

Shall we send booklets to you?

Warren Brothers Company

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DIXON'S SILICA GRAPHITE PAINT

is most economical to use because it will put off repainting for the longest period of time and yet protect the surface from deterioration.

It has proven its long service quality by many records made in leading industrial lines. These records have been possible only because of the unusually long-wearing pigment, flake silica-graphite, and the vehicle, linseed oil.

Write for Booklet No. 107 B. and Color Chart.

JOSEPH DIXON CRUCIBLE COMPANY
JERSEY CITY NEW JERSEY



Established 1827



Concrete Roads must be reinforced

It is demonstrated beyond doubt that to make concrete roads proof against heavy motor traffic, weather and time a fabric of steel must be incorporated in the concrete.

Several great States have so ruled.

**American Steel and Wire
Company's**

Concrete Reinforcement

Fulfills every engineering requirement.

Send for our book on road building

CHICAGO
NEW YORK
CLEVELAND
PITTSBURGH
DENVER



73 % to 75 %

**Pulverized
CALCIUM CHLORIDE**

Keeps down the dust on macadam and gravel roads, preventing disintegration of the road surface. It absorbs $1\frac{1}{2}$ to 2 times its own weight of water from the air, thus preventing dust. It is not injurious to rubber, varnish, paint, etc., and is only washed off the road by rains that would carry away some of the road surface.

Shipped in 400-Pound Drums

One drum of Carbondale Calcium Chloride is sufficient to treat a road 18 feet wide by 130 feet long at the rate of $1\frac{1}{2}$ pounds per square yard, which is the usual rate of application. It may be distributed by an ordinary scoop shovel or a horse-drawn distributing machine like a lime spreader at a cost of about 2 cents per square yard.

Ask for our new booklet "Conquering a Common Enemy."



CARBONDALE CALCIUM CO.

CARBONDALE, PA.

BRANCH OFFICES

New York, Chicago, Boston, Pittsburgh, Mobile,
Atlanta, New Orleans, Baltimore, Philadelphia.



See!



NOW YOU CAN HAVE A MOTOR DRIVEN SPRINKLER, TOO!

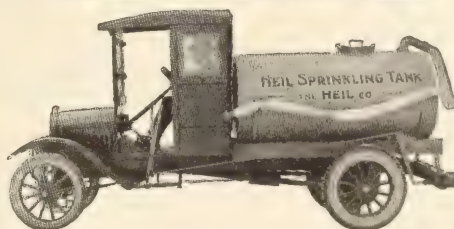
And what's more you can place your sprinkling tank on the same Ford Truck chassis from which you have removed your ash collection body. Both types of bodies are designed especially for the modern municipality. Write us today for complete data on them or on any other type of dumping equipment you may require.

1242-60 26th Ave.

THE HEIL CO.

Milwaukee, Wisc.

The Heil Ash and Rubbish Body like Shorewood uses, has a capacity of 60 cu. ft. Sides are hinged 18" from bottom to facilitate loading. Tail Gate is double-acting. Equipped with Heil Underneath Hand Hoist. Dumping angle—55 degrees.



Capacity of Sprinkler, 500 gallons for 3 city blocks. Radius of spray, 18 ft. Fitted with manhole, $2\frac{1}{2}$ " swivel connection and sprinkler heads with manual control in driver's cab. Easy to install.



POLICE VERDICT

from five great
American Cities
is that—

***Indian
Motocycles***

"Are best for police work"

—Toledo, Ohio, Police Chief

"Indian Satisfactory"

—Indianapolis, Ind., Police Dept.

"Acme of perfection"

—Los Angeles, Calif., Police Chief

"Most Satisfactory"

—Atlanta, Ga., Police Chief

"Best Buy"

—Omaha, Neb., Police Dept.

Write for our special police booklet
"Maintaining Law and Order."

HENDEE MANUFACTURING CO.

Springfield, Mass.

Indian
-a police go getter



A Credit to your Administration

THE MACK combination
flusher and sprinkler doing
its work effectively and econo-
mically on any highway reflects
credit upon the community's
administration.

This particular municipal
equipment possesses many ex-
clusive features in addition to
the well-known excellence of
Mack quality and construction.
It has a single engine system;
ample power for both truck and
pressure pump; low mainten-
ance cost; one man operation.

Our engineering department is
well equipped to analyze any
specific problem of motorizing
municipal equipment. An in-
quiry does not incur the slight-
est obligation on your part.

**INTERNATIONAL
MOTOR COMPANY**

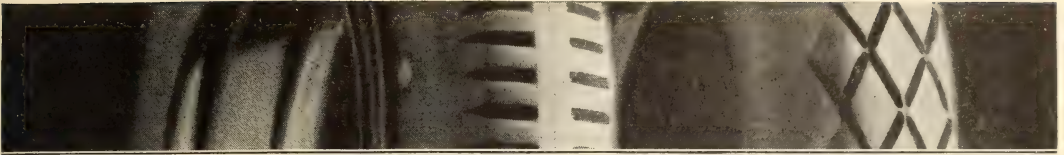
25 Broadway New York City

Branches owned by this company operate under
the titles of: "MACK MOTOR TRUCK COM-
PANY" and "MACK-INTERNATIONAL MOTOR
TRUCK CORPORATION"

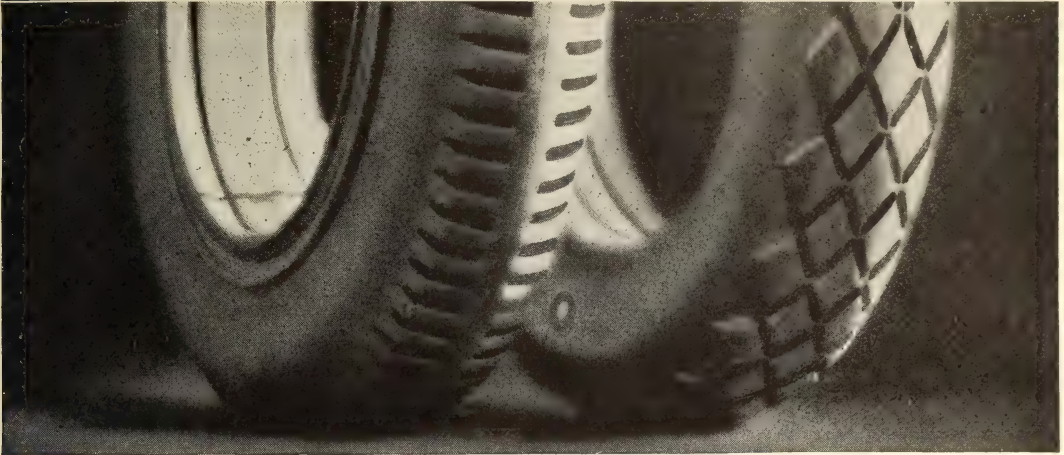
Capacities: 1½ to 7½ tons. Tractors to 15 tons.

PERFORMANCE COUNTS





CONSTANT, ECONOMICAL SERVICE



GOODYEAR Cord Truck Tires enable vehicles engaged in civic operations to carry on their important duties in all kinds of weather. In no business or industry is this constant, uninterrupted service more desirable than in street maintenance, snow and garbage removal, and similar tasks.

These big, rugged tires go surely and quickly through slush, snow and mud. They are built to resist rut and curb wear. They keep trucks out of the repair shop

because they cushion motor and chassis from shocks and jars.

In most phases of municipal hauling, Goodyear Cord Truck Tires have demonstrated their ability to reduce costs and improve service. There are other Goodyear Tires for other needs—Goodyear Cushions and Goodyear All-Weather Tread Solids. For assistance in determining the most practical tire for any work, call the nearest Goodyear Branch. Or, if more convenient, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear



When writing to Advertisers please mention THE AMERICAN CITY.

Buffalo-Pitts and Kelly-Springfield Rollers—Steam and Motor



All Types and Sizes

With or without Scarifier
attachment.

Helps you finish the job
on time.

*Send for catalog A for
complete information.*

THE BUFFALO-SPRINGFIELD ROLLER CO.
SPRINGFIELD **--** **OHIO**

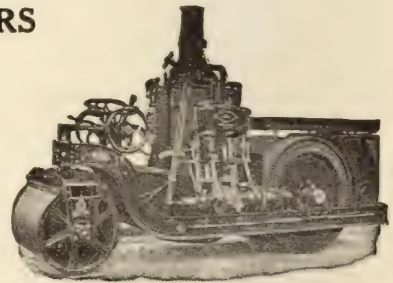
ERIE TANDEM PAVING ROLLERS

Includes everything that makes for the best in Road Rollers. They are strong, simple in construction—durable and economical and easy to operate. Our first roller built in 1887 is still doing its "bit."

Erie Rollers are guaranteed against breakage or wear for 5 years.

Write for illustrated material.

THE ERIE MACHINE SHOPS



ERIE, PA.

SOMETHING NEW IN DUMP WAGONS



**For hauling garbage, ashes,
tin cans, etc.**

Why use three wagons when ONE will do the work?

Our wagon has extra large capacity, low-hanging bed, easy to load and dump.

STRONG AND DURABLE

Write us for further details.

GEO. H. HOLZBOG & BRO.

Manufacturers of steel
and wooden-bed vehicles.

JEFFERSONVILLE, INDIANA

Caterpillar tires double this truck's usefulness

In summer the truck pictured below is used in building roads. But in winter when there are no roads to build it becomes a snow plow. Caterpillar tires furnish the needed traction for both jobs.

In regard to the service given by the Caterpillars on this truck, Mr. Fred Ebling, Supt. of Highways for the Town of Tonawanda, New York, writes:

"When this truck was bought last spring one of the things we had to consider was tractive ability because of the character of the work to be done. During the summer this truck is used for highway construction and naturally this means traveling over all kinds of roads in all stages of construction, ranging from soft sub-grades up through crushed stone base to the finished highway. After the road season ended, we equipped this Atterbury with a Baker snow plow and have been keeping the roads open for traffic throughout the township.

"In all this work we have found the Caterpillars very effective in securing traction. So far the hubodometer registers 6,801 miles and we leave it to the photograph to show the condition of the tires after a season's road building and general use. For our use we feel that this combination is 100% efficient.

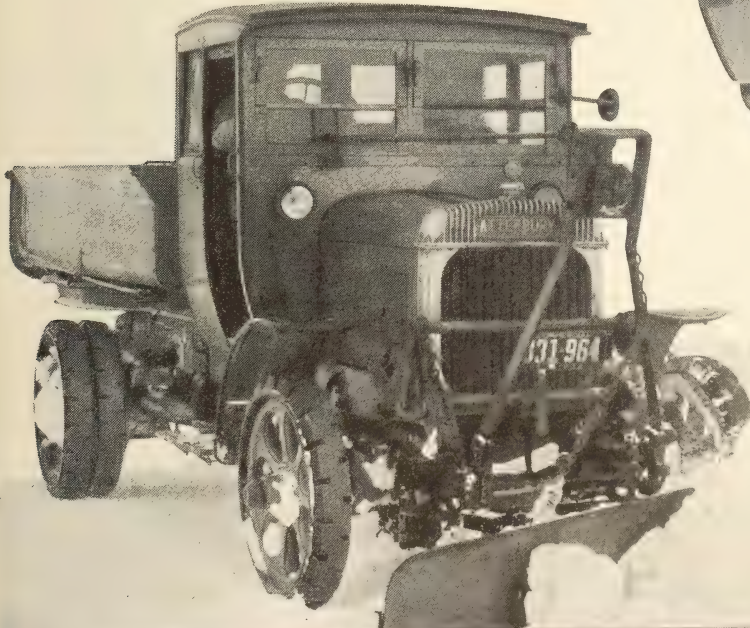
The ability of Caterpillars to get traction enables a truck to do more and better work. Their remarkable cushioning lengthens a truck's life. And the mileage they deliver cuts down operating expense.

There are no Caterpillar Tires but Kelly Kats

KELLY-SPRINGFIELD
TIRE COMPANY



250 W. 57th STREET
NEW YORK, N. Y.





For Heating and Applying under Pressure all varieties of Bituminous Materials, Hot or Cold, for Road Construction, Maintenance or Dust Laying.

Heat and volume under instant control of operator. Positive pressure produced by the Kinney Pump.

PATENT COMBINATION Auto Heater and Distributor

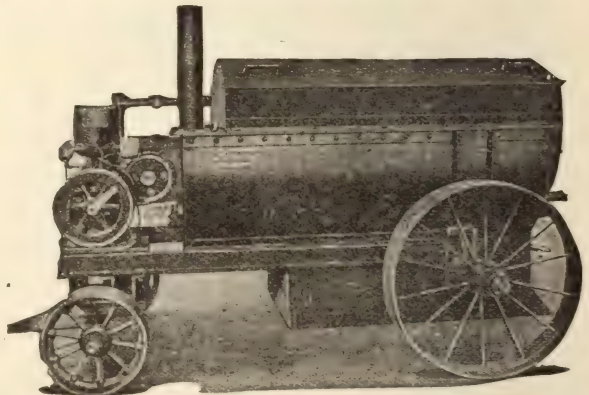


HANDY HEATER and SPRAYER

Especially adapted for Road maintenance, construction and general repair work. Contents constantly agitated while heating.

No burning or coking of material. Pump, Piping, Hose, Nozzles, Automatically Heated.

No Steam Required.



Kinney Manufacturing Company

3529 Washington Street
BOSTON, MASSACHUSETTS

BRANCHES:

NEW YORK

PHILADELPHIA

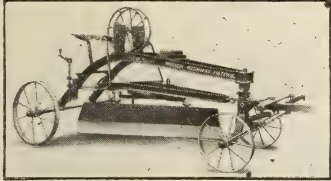
CHICAGO
SAN FRANCISCO

HOUSTON

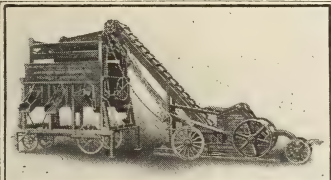
KANSAS CITY

ROAD MACHINERY

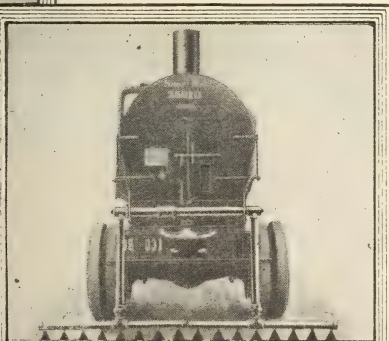
that pays for itself



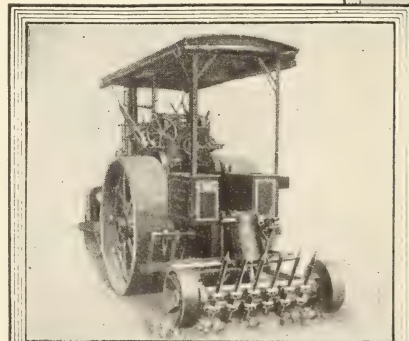
WINNER HIGHWAY PATROL ROAD GRADER. Winner Graders are made in six different sizes.



NO. 4 CHAMPION STEEL ROCK CRUSHER, Mounted, with Elevator, Screen and Portable Stone Bin.



CHAMPION HEATING DISTRIBUTOR
For applying all grades of bituminous binders



MONARCH STEAM ROAD ROLLER,
with Scarifier Attached. Made in 10 and 12 ton sizes.

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**GOOD ROADS
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OUR COMPLETE CATALOG
"EVERYTHING for the ROADMAKER"
WILL INTEREST YOU. IT IS FREE ON REQUEST

A piece of road building equipment that pays for itself in the returns it brings to the user is an investment.

That's the kind of Road Machinery you want, —it's the kind we furnish. It's the kind that means satisfaction to you as a buyer.

We furnish a complete line of Road Building Machinery. Six different sizes of Road Graders, Portable and Stationary Rock Crushers, Elevators, Screens, Conveyors, Bins, Oiling Machinery, Heating Kettles, Road Drags and Culvert Pipe.

If you are looking for high grade machinery and genuine service we would like to hear from you.

AUSTIN OILERS



Sprinklers and Sweepers

is the title of a new catalog in which is described a most complete line of Pressure Road Oilers, Horse-Drawn and Motor Sprinklers and Sweepers and other equipment for city and country use.

Every official interested in the economical upkeep and cleaning of roads or streets should have a copy of this catalog in his file as the machinery described is the last word on those subjects.

Write for your copy today.

THE AUSTIN-WESTERN ROAD MACHINERY CO.

Home Office - CHICAGO

Branches and Service Stations in 22 Cities



FOR HANDLING CRUSHED STONE or SAND and GRAVEL



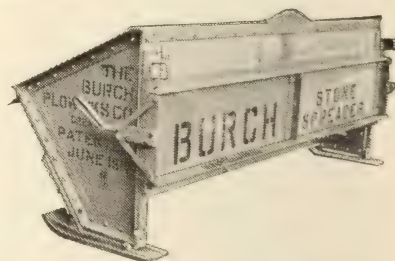
From cars to trucks the **RELIANCE PORTABLE CAR UNLOADER** will save more than its cost in one season.

Catalog and Price List on Request.

UNIVERSAL ROAD MACHINERY CO.
KINGSTON, N. Y.

New York Office, 114 Liberty St.

Boston Office, 141 Milk St.



Save Those Wages

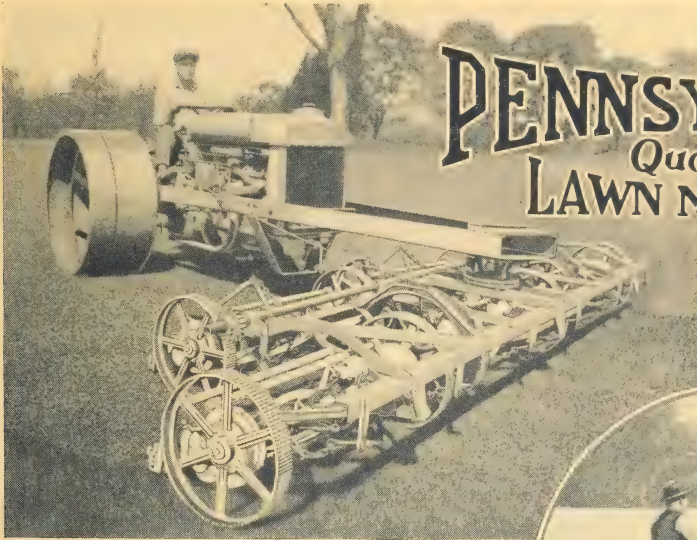
With a scarcity of men and high wages, no road builder should try to get along without the

Burch Spreader

It spreads road material from the back of the truck to the required depth and width in a fraction of the time and at less than half the cost of hand labor—and does a better job.

With it and the Burch Car Unloader you make a saving that spells profit. The commendation of other contractors is our best evidence. Write for it.

The Burch Plow Works Company
Dept. A-4, Crestline, Ohio



PENNSYLVANIA

Quality
LAWN MOWERS

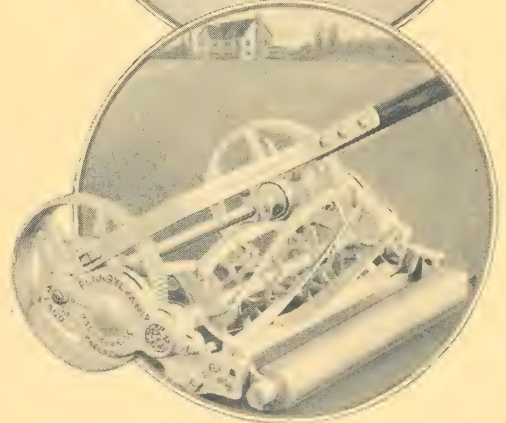
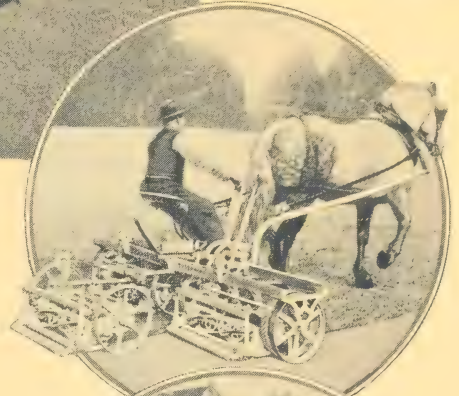
Pennsylvania TRIO; a time and labor saver for golf course, polo grounds, parks, large estates; 86-in. swath.

Five Pennsylvania Quality Mowers driven by tractor will cut 60 to 80 acres per day.

The worth of a lawn mower is best judged by performance multiplied by years of service.

Pennsylvania Quality Mowers, whether drawn by horse, driven by tractor and pushed by hand, have given the utmost in service and proved to be longest lived.

Their economy is marked, not only in the amount of work accomplished, but in upkeep as well. This is especially important where large areas must be kept in fine condition.



Pennsylvania GOLF; closest cutting for putting greens, tennis courts and fine lawns.

Write for
"Pennsylvania TRIO Book"

Pennsylvania Lawn Mower Works, Inc.

1615 North 23rd Street, Philadelphia

TEXACO ASPHALT

paves the cities of the world



MARSEILLES - LONDON - NEW YORK

(FRANCE)

(ENGLAND)

(U. S. A.)



FRANCE

TEXACO Asphaltic Concrete pavement on French National Road No. 7, between Antibes and Cagnes, Southern France.



ENGLAND

TEXACO Asphalt Macadam pavement on the London Portsmouth Main Road, London, England.



UNITED STATES

Photograph shows part of 32 miles of TEXACO Asphaltic Concrete surrounding Ashokan Reservoir in New York, U. S. A.



BRAZIL

TEXACO Asphalt pavement in process of construction on the Avenida President Wilson in the City of Santos, Brazil, South America.



PHILIPPINE ISLANDS

TEXACO Asphalt being laid on Calle Bogumbayaw in Manila, Philippine Islands.



AUSTRALIA

TEXACO Asphalt being laid on Spring Street, Melbourne, Victoria, Australia.



SANTOS - MANILA - MELBOURNE
 (BRAZIL) (PHILIPPINE IS.) (AUSTRALIA)

“East is West” with TEXACO Asphalt pavements.

North and South of the Equator, in the Orient and in the Occident, in frigid winds and the mildest climates, Texaco Asphalt is serving the entire world.

We take you on these pages from Southern Europe to the British Isles, from the United States to Brazil, from the Philippine Islands to Australia—north, south, east, west—and you see that great cities in all parts of the world use Texaco Asphalt pavements with excellent success.

Texaco Asphalt is pure, binding and adhesive. It is the ideal paving material. Write for well-illustrated booklets.

TEXACO

The Texas Company, U.S.A.

ASPHALT SALES DEPARTMENT

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New York City



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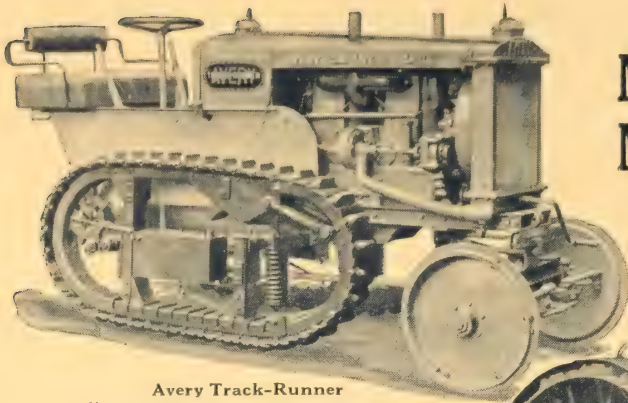
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When writing to Advertisers please mention THE AMERICAN CITY.



Avery Track-Runner

The only track-type tractor with roller-bearing track. Just the right size for pulling medium size road graders, levelers, etc.

Make Your Street Maintenance Money Go Farther

An Avery Road Machine for Every Kind of Work

Avery road building and road-maintenance machinery offers a combination of features that no street official should overlook. For example, the Avery "Track-Runner" shown above. This is the only tractor built with a track operating on roller bearings. Pulls a 7 or 8-foot road grader and medium sized road levelers and maintainers—ideal for street and road work.

Another wonderful tractor for street work is the Avery 20-35 H. P.; and for heavy jobs there are nothing like the big Averages in 25-50 and 45-65 H. P. size. All built with more powerful motors, new improved cooling and oiling systems, cellular radiators and other improvements.

The most successful power machine ever built for road maintenance work is the Avery One-Man "Road-Razer"—the machine that solves the maintenance problem. Shaves rough, rutty, cut-up roads and streets—smoothes them into level boulevards in few minutes time—removes snow in winter.

These are but a few of the many new Avery Road machines that you will be interested in and that will do much to make your road dollars go farther in 1923.

Write for the Avery Booklet showing the complete Avery line—a machine for every road job.

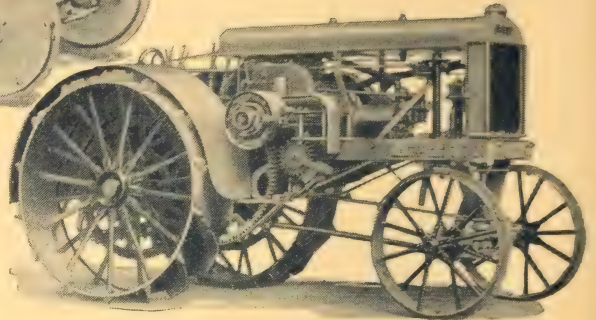
EVERY CO., 223 Iowa St., Peoria, Ill.

Branch Houses: Madison, Fargo, Omaha, Minneapolis, Grand Forks, Sioux Falls, Aberdeen, Billings, Lincoln, Sidney, Neb., Des Moines, Indianapolis, Columbus, Kansas City, Wichita, Salina, Stuttgart and Sacramento

Distributors: Avery Company of Texas, Dallas, Amarillo and Beaumont, Texas
Also Other Principal Machinery Centers

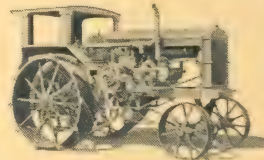
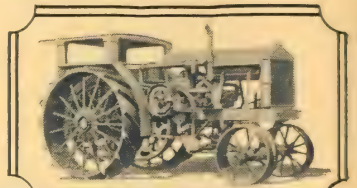
AVERY

Road-Building, Maintenance and Hauling Machinery



Improved Avery 20-35 H. P. Tractor

Improved Avery 45-65 H. P. Tractor



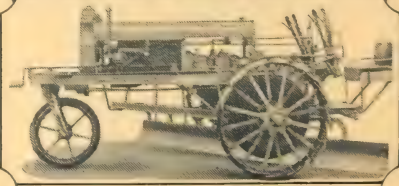
Improved Avery 25-50 H. P. Tractor



Improved Avery 25-50 H.P. 10-Ton Road-Roller-Tractor



Avery Motor Truck with Dump Body



Improved Avery One-Man "Road-Razer"

"It Pays to Avery-ize"

T I F F I N

Two-Motor System Street Flushers
and Sprinklers

T I F F I N

Motor-Driven Gravity Sprinklers
High class complete outfits, builded from
the best of standardized and specialized
units

T I F F I N

Combination Flushing and Sprin-
kling Units

T I F F I N

Gravity Sprinkling Units
for all types, styles, sizes and makes of
Trucks

A wonderful dealer proposition

Equipment that will lower your street cleaning costs
An outfit and a capacity that will meet your requirements

Our Flushers licensed under Shelly Patents

Write for catalogs

THE TIFFIN WAGON COMPANY
TIFFIN, OHIO

AMERICAN-LA FRANCE Shatters

13 Days' Continuous Pumping in Zero Weather
American- LaFrance Motor Fire



ON November 23rd last a serious mine fire was discovered at Jonesville, Alaska. To fight the fire a Type 12 American-LaFrance Pumper was summoned from the Anchorage, Alaska, fire department.

It was thirteen days before the fire was extinguished. DURING THAT TIME THE AMERICAN-LA-FRANCE PUMPER WORKED CONTINUOUSLY with the exception of brief stops at irregular intervals for the purpose of changing the oil, and replacing hose that had blown couplings.

The affidavit reproduced on the opposite page tells the story in detail.

To make this performance all the more remarkable the thermometer at the time of the fire was hovering around the zero mark.

Two hundred pounds pump pressure was maintained, which is equivalent to driving the car 9400 miles at top speed practically without interruption.

Engineering principles evolved from 78 years' experience at building fire apparatus, selection of the best materials, the thorough testing of every car we produce, and superior manufacturing methods, combine to make unusual performances typical of American-LaFrance Motor Driven Fire Apparatus.

Fire Chiefs Who Insist on the Best Invariably Get
AMERICAN-LA FRANCE

NEW YORK
BOSTON
ATLANTA

BRANCHES

PITTSBURGH
CHICAGO
DALLAS

AMERICAN - LA FRANCE
ELMIRA, N. Y.

All Known Pumping Records

Adds a New Chapter to the Accomplishments of Apparatus



AFFIDAVIT

TO ALL TO WHOM THIS MAY CONCERN:
GREETINGS.

Anchorage, Alaska
15 January 1923

I, William P. T. Hill, do hereby solemnly swear the following facts to be the truth relative to the performance of The American LaFrance Fire Engine, Registered 3970, Type 12, from the Anchorage Alaska, City Fire Station:

That above registered 3970 American LaFrance Fire Engine was in operation actually pumping for a total of 307 hours between November 23, 1922 and December 6, 1922 (both dates inclusive) at Jonesville, Alaska, during which time fire in the Jones mine was put under control;

That the above dates, above registered 3970 American LaFrance Fire Engine was shut down only for less than 6 hours; this being necessary at irregular intervals for the purpose of inspection, changing of oil, the general lubrication of engine and pump, and for replacement of hose that had blown couplings; but that at no time was there any necessity for shutting down due to failure of engine or pump to function properly and correctly;

That for the above 307 hours a pressure of 200 pounds or greater was maintained at the pump for the entire time;

That water was delivered to mine, a distance of 3,335 feet and a lift of 150 feet for entire 307 hours running time;

That operation of above registered 3970 American LaFrance Fire Engine was under most trying conditions in that the temperature ranged between 10 degrees below zero and 20 degrees above zero with intermittent flurries of snow, and that there was a continual freezing and thawing of line between fire engine and mine, which also necessitated the attention of the men operating said fire engine;

That during above time entire apparatus functioned 100 percent due to the experience of Fire Chief J. W. Greene and his assistant Mr. T. S. Bevers, both of the Anchorage Fire Department;

That consumption of gasoline for above run was approximately 1700 gallons Red Crown, and consumption of oil was approximately 90 gallons Valvolene heavy;

That the Anchorage Station of the U. S. Bureau of Mines takes this occasion to thank Mr. J. W. Greene and Mr. T. S. Bevers for the faithful and efficient assistance rendered by them in the flooding of the Evan Jones Coal Company mine fire.

Wm. P. T. Hill

Wm. P. T. Hill
Captain, U. S. Marine Corps
In charge of Anchorage Station
U. S. Bureau of Mines, Anchorage, Alaska.

Subscribed and sworn to before me this 18th, day of January, A.D. 1923.

Robert A. Hanley
Notary Public for Alaska
My commission expires: August 3, 1926.



FIRE ENGINE COMPANY, INC.

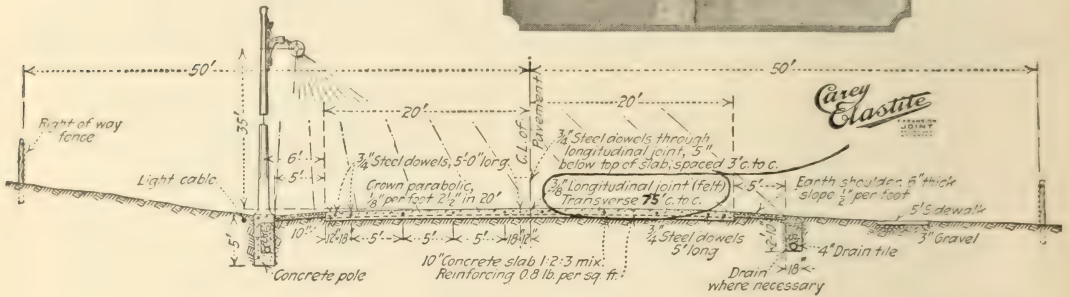
CANADIAN FACTORY: TORONTO, ONT.

BRANCHES

DENVER
MINNEAPOLIS
LOS ANGELES

SAN FRANCISCO
WASHINGTON
PORTLAND

The "Ideal Section" of the Lincoln Highway near Dyer, Indiana. Stone & Webster, Boston, Mass., Engineering Contractors in charge of construction, assisted by Lockwood, Green & Co., Detroit, Mich., Consulting Engineers, Jen Jensen, Chicago, Ill., Landscaping, J. C. O'Connor & Sons, Fort Wayne, Ind., Contractors. Carey Elastite Expansion Joint used as transverse and longitudinal joints.



Carey Elastite Expansion Joint chosen for the "Ideal Section"

Features of the "Ideal Section"

Standard width of right-of-way, 100 feet. Paving width, 40 feet. Four traffic lanes. Accommodation for 15,000 passenger automobiles per 24 hour day at 35 miles per hour, and 5,000 motor trucks every 24 hours at 10 miles per hour. Thickness of concrete, 10 inches, reinforced with 80 lb. steel per 100 sq. ft. No curves less than 1,000 feet radius. Curves super-elevated for speed of 35 miles per hour. Crossings at grade eliminated. Foot-path for pedestrians. Embankments over 3 feet high guarded by rail. Uniform markers for distance and direction. Comfort station and a camp site acreage. Special illumination for night driving. Wiring carried in underground cables. Drainage taken care of underground; no open ditches.

THE Ideal Section of the Lincoln Highway is a one and one-half mile length between Dyer and Schererville, Ind., 32 miles south of Chicago.

"Its proponents," writes Mr. W. G. Thompson, Consulting Engineer for the Ideal Section, "do not set it up as a pattern to be minutely followed, but as a guide, hoping that the general principles may be adopted and improved on when routes of heavy travel are being considered."

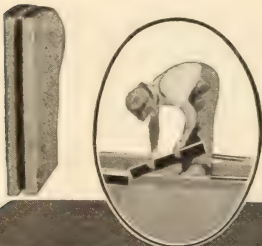
Ideas secured from questionnaires to 4,600 highway engineers are embodied in the design.

Carey Elastite Expansion Joint is used in the "Ideal Section" as transverse joints every 75 feet and is also used as a longitudinal center joint.

THE PHILIP CAREY COMPANY
8 Wayne Avenue, Lockland, Cincinnati, Ohio

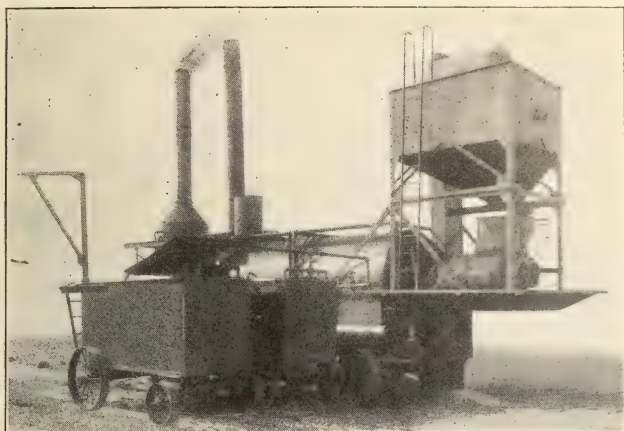
Carey Elastite
TRADE MARK U.S. Pat. Office
EXPANSION JOINT
PROVED AND ACCEPTED

Made like a sandwich
installed like a board



4-23

Carey Elastite Expansion Joint is an asphaltic body sandwiched between two walls of asphalt-saturated felt, making an elastic, compressible joint. Made in any dimensions, cut to crown or special shape, and comes to the job ready to use.



AUSTIN PORTABLE ASPHALT PLANTS

For Municipal and Highway work are unsurpassed. Never before has a more complete unit been placed on the market.

It has a capacity of 1,800 square yards of

two-inch top per 10 hours. The compactness of this unit and particular features make it an ideal plant in every respect. Descriptive matter will be sent on request.

Also information on Austin Cube Mixers, Drum Mixers, Cube-Hex Pavers, Drum Paver, Tamper and Finisher, Wagon Loader, Asphalt Plants, Clamshells, Shovels, Trench Machines, Backfillers, Draglines, Cranes.

AUSTIN MACHINERY CORPORATION

3500 Dorr Street

Toledo, Ohio

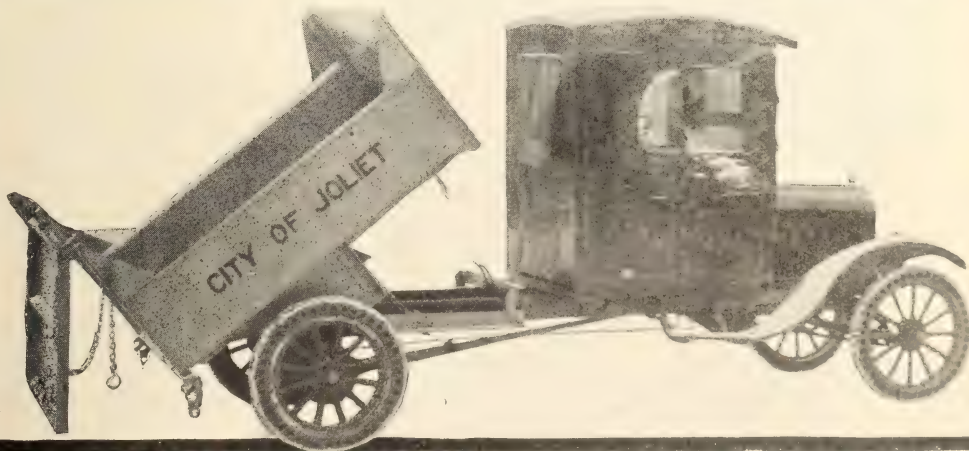
LEE-4D DUMP BODIES ARE ECONOMICAL

This new self-dumping body for collecting garbage, rubbish and refuse provides in one unit an all-round service body for municipal use which enables the truck to be used economically by every city department. Bulletin 77-AC gives worth-while cost data.

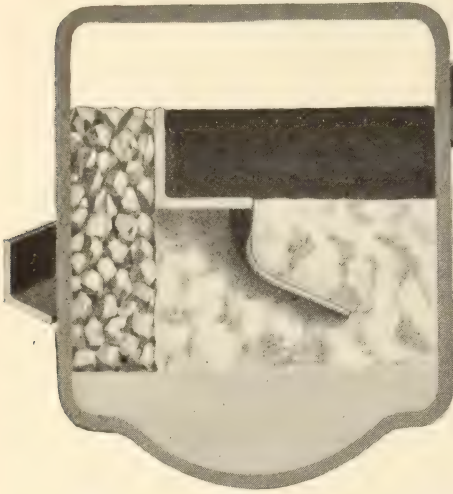
LEE TRAILER AND BODY CO.

2343 S. La Salle Street

Chicago, Ill.



Save the Road Edge



International Steel Paving Guard

Wherever International Steel Paving Guards have superseded concrete header curbs for protecting pavement edges, all disputes as to responsibility of making repairs have been avoided. These guards not only insure permanent pavement edge protection and enable track work to be carried on without disturbing the pavement but they distinctly define the sphere of responsibility of the road and railway engineers.

INTERNATIONAL STEEL TIE CO.,

Cleveland, Ohio

WOOD DETROIT

Hydraulic Hoists and Steel Bodies



The dominance of Wood-Detroit Hydraulic Hoists and Steel Bodies in the municipal field is due to two things; the dependability and mechanical efficiency of the Wood-Detroit hoist and the completeness with which Wood-Detroit body engineers have met every city haulage problem.

Wood Hydraulic Hoist & Body Co.

7924 Riopelle Street

Detroit, Mich.

Service Equipment!

LITTLEFORD TAR AND ASPHALT HEATERS

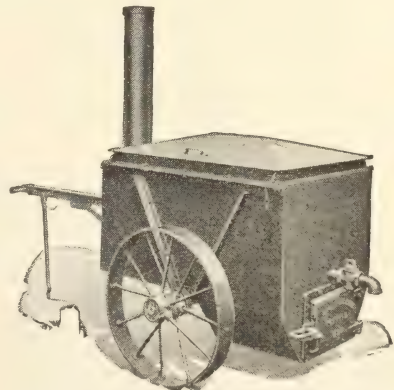
Every street and highway maintenance department requires tar and asphalt heaters in pursuing their work of keeping streets and roads fit for traffic and the selection of this equipment should be determined by careful study of the pavings to be maintained.

Littleford Tar and Asphalt Heaters are specially designed for this service. The different styles are made to suit the many requirements of maintenance problems in the most economical manner. They are durably constructed and will give long continuous service.

Our new catalogue of Tar and Asphalt Heaters and Paving Tools for contractors and municipalities is now ready. Copy sent on request.



Littleford "Patrol"
Heater No. 68
Capacity, 10 gal.



Maintenance Heater
No. 69.
Capacity, 60, 110,
165 gallons

LITTLEFORD BROS.

453 EAST PEARL STREET,

CINCINNAT, O.



Haiss
MATERIAL HANDLING EQUIPMENT
ESTD. 1892



Organized Economy Earns Profits

You road contractors know from experience that, in these days, you can't afford hand shoveling to load your trucks and feed your mixers—good Loading Machines pay for themselves out of payroll savings, and earn profits. And they enable you to figure closer and bid in the good contracts.

But you must have good equipment—built for your work and able to stand the gaff. Haiss builds it!

Thirty years of practical experience and some of the best engineering brains in the country have created the Haiss Truck Loaders which have revolutionized truck loading costs. They earn a big dividend on a cost which is very moderate for their workability. They are the one best bet for the progressive road contractor.

Only Haiss Truck Loaders have the combined motions of digging, self-feeding and slow-speed crowding into the pile—all operating simultaneously.

Your next loading job will need a Haiss Truck Loader. Investigate their savings now!

Ask for cost data on Haiss Loading—and copies of Bulletin 621 and 521.

THE GEO. HAISS MFG. CO., Inc.

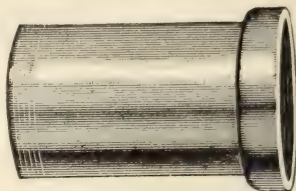
143rd St. and RIDER AVE., NEW YORK

Established 1892

Representatives throughout the world



DICKEY SEWER PIPE FOR STORM SEWERS



Vitrified Salt-Glazed Clay—the most permanent sewer material made. Moisture-proof, acid-proof, gas-proof, decay-proof.

The smooth, salt-glazed surface results in an increased carrying capacity, as compared to rougher materials.

Write for information and prices.

W. S. DICKEY CLAY MFG. CO.

Established 1885

KANSAS CITY

MISSOURI



AZTEC KOLMEND

Mends the holes in streets or roads including

ASPHALT

BRICK

CONCRETE

MACADAM

DIRT and GRAVEL

Write for particulars.

**THE UNITED STATES ASPHALT
REFINING COMPANY**

90 West Street,

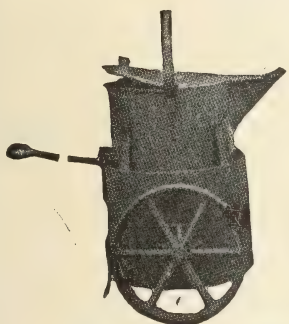
New York City

TAR AND ASPHALT HEATERS CONNERY

NON-LEAKABLE WELDED

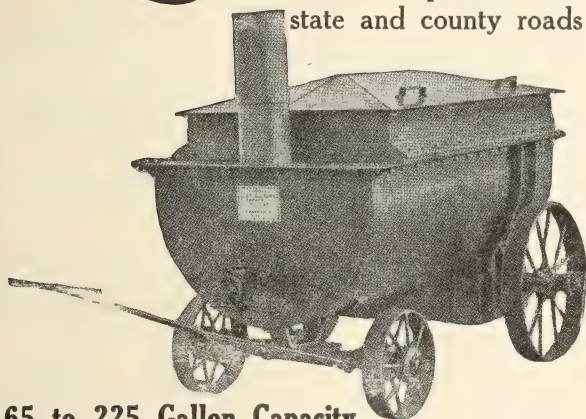
"Held by the Weld"

10 Gallon Capacity



This style kettle is made especially for small patch work where there are a considerable number of small holes to be properly filled up with gravel or crushed stone and cemented with a bituminous binder. The inside pot lifts out and can readily be used as a pouring pot. A large number of Style P kettles have been put into use by division superintendents on state and county roads to patch small holes.

300 to 500 Gallon Capacity



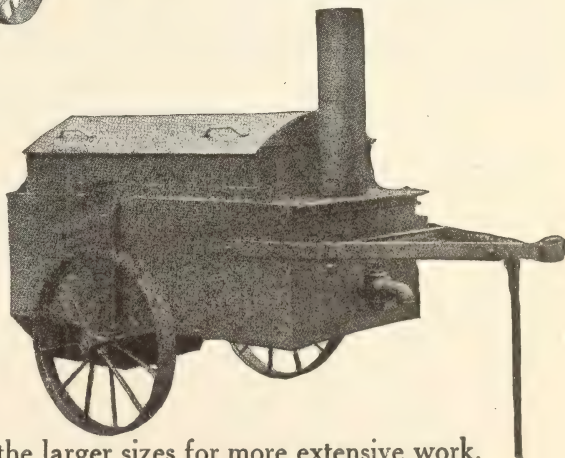
The Style B Kettle shown at the left has a lined fire-box with cast iron grate bars and is made to burn wood, coal or coke. It is equipped with a draw-off cock at the front. All tanks are Connery "Held by the Weld" type, which eliminates leaks.

65 to 225 Gallon Capacity

This kettle contains most of the features of the style B kettle shown above except that it is of smaller capacity and does not come equipped with barrel hoist and warming hood as in the kettle above.

Connery kettles are known throughout the country as standard for street and road work, whether our smallest

size, Style P, shown above, or the larger sizes for more extensive work.



"Double Electric Welded"

CONNERY & CO., Inc.

4000 North Second Street

PHILADELPHIA, PA.

RUSSELL "HI-WAY PATROL"

We have certainly improved this machine and it stands today a mechanical marvel without an equal. For road maintenance it has many distinctive features—receding platform allowing operator full view of work—long wheel base—large wheels—blade lowered and raised by worm gear. It is easy riding and requires only one man and two horses.

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RUSSELL
ROAD EQUIPMENT



Type SC-483

AMBULANCES and PATROLS

Civic pride demands that distinctive and practical municipal equipments be employed to serve the general public. Ambulances, patrols and other automotive units are visible evidences which circulate among the public every day.

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Pouring Pots
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Brick Fillers
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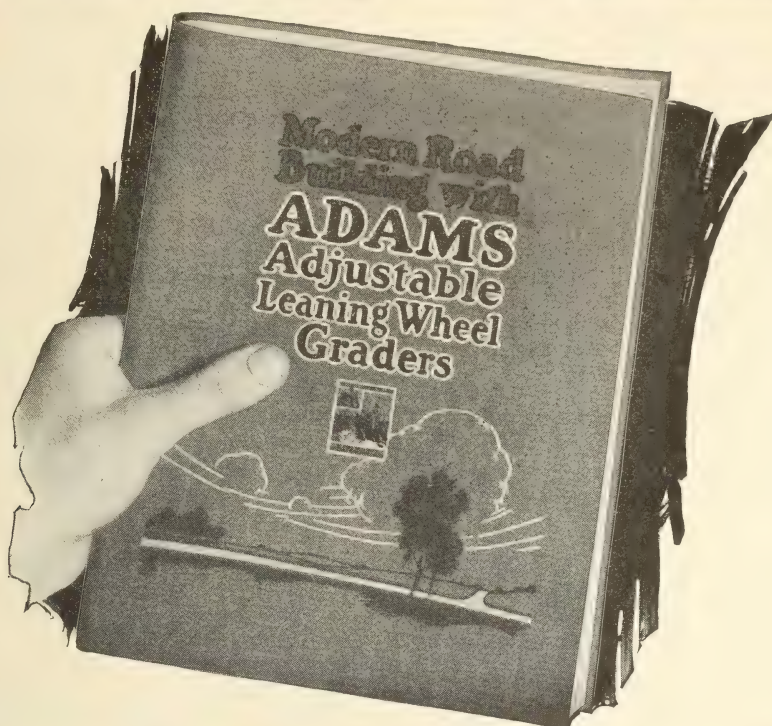
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How They Do It
In Other Places
See Pages 4-6

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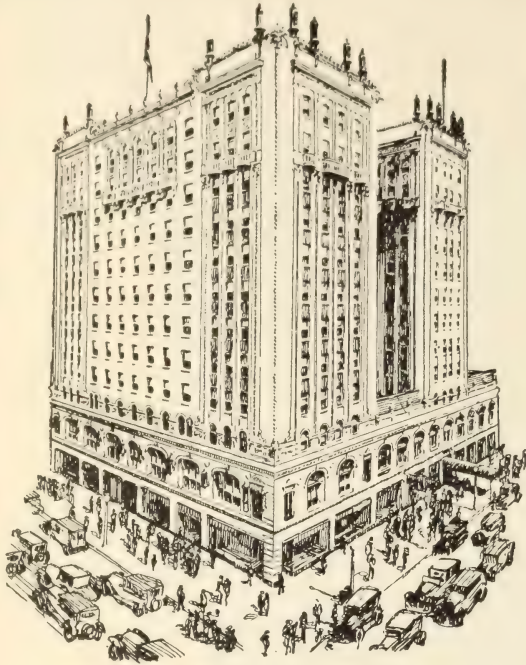
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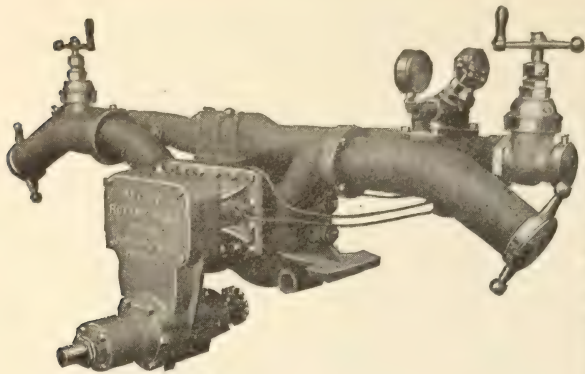
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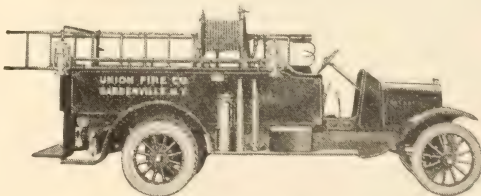
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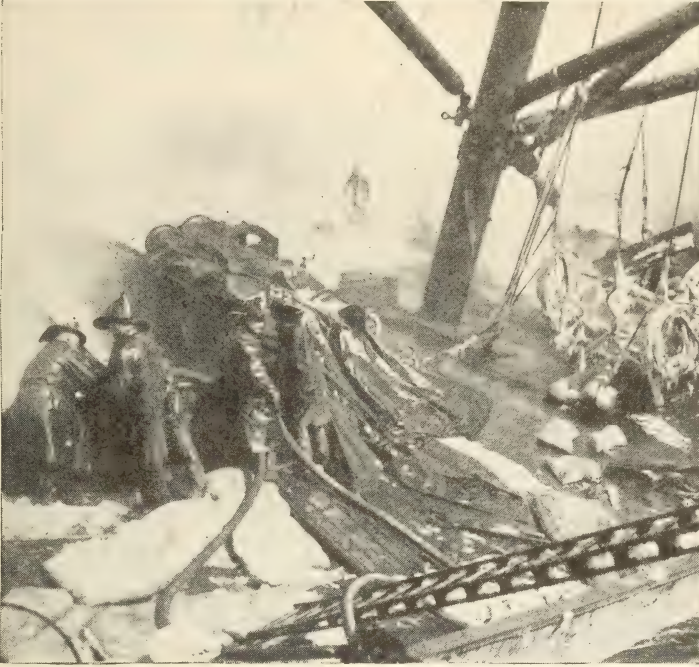
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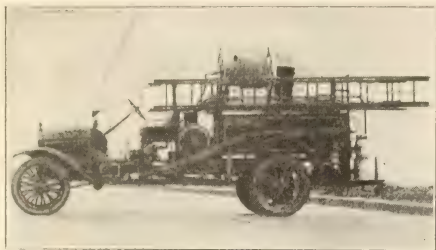
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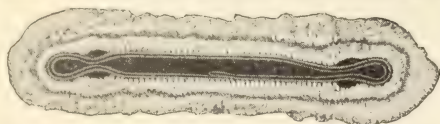
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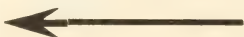
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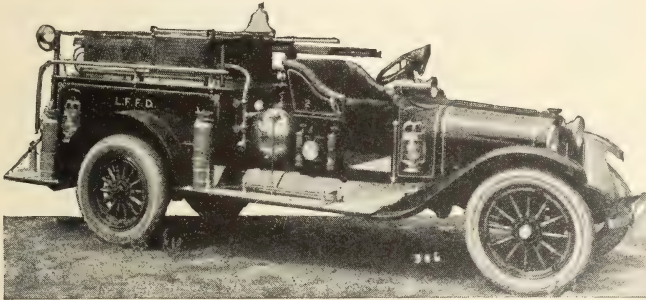


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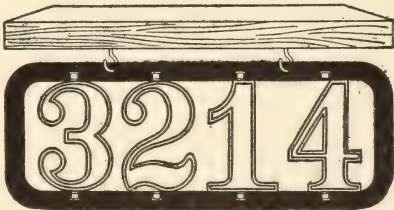
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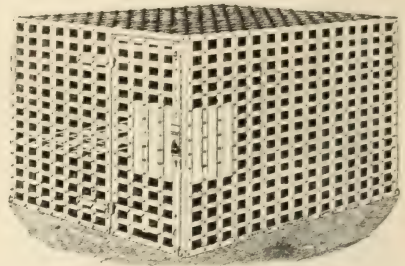
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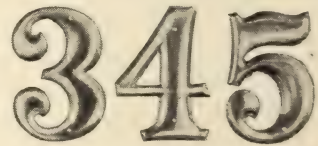


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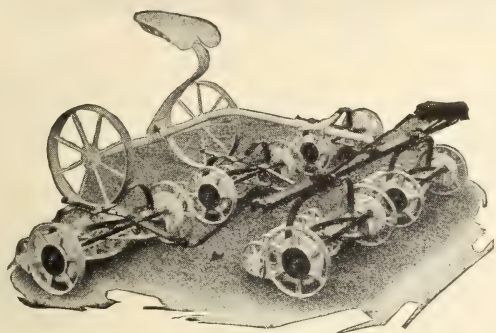
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Many Hands Make Light Work---

Likewise, this gang of mowers possesses a considerable appetite for trimming lawns.

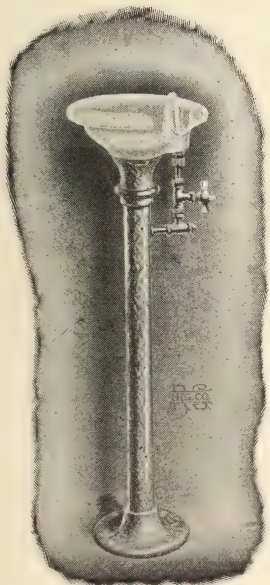
The Imperial Gang Mower, a combination of five highly successful Imperial Hand Mowers, cuts a swath 91 inches in width, and is an extremely flexible mower on undulating ground. It is the large capacity mower for use on wide areas where rolling is not essential.

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Equipped with General Electric fixtures and globes.

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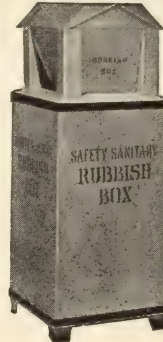
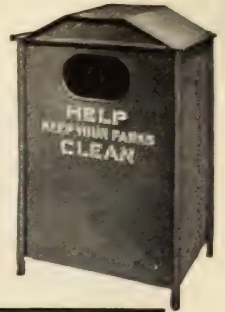
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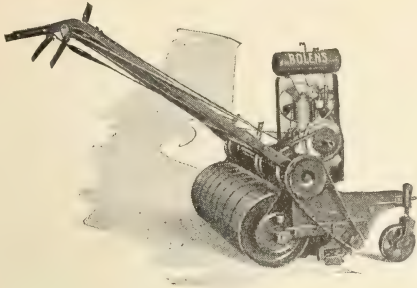
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Experts who have seen the Bolens Power Lawn Mower say that it combines in one machine all of the features that are most

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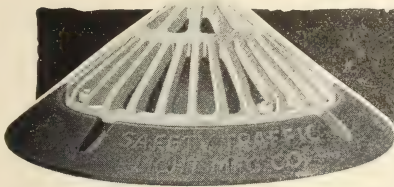
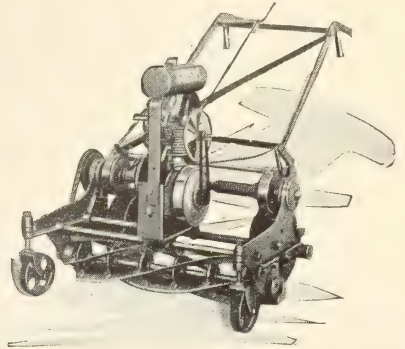
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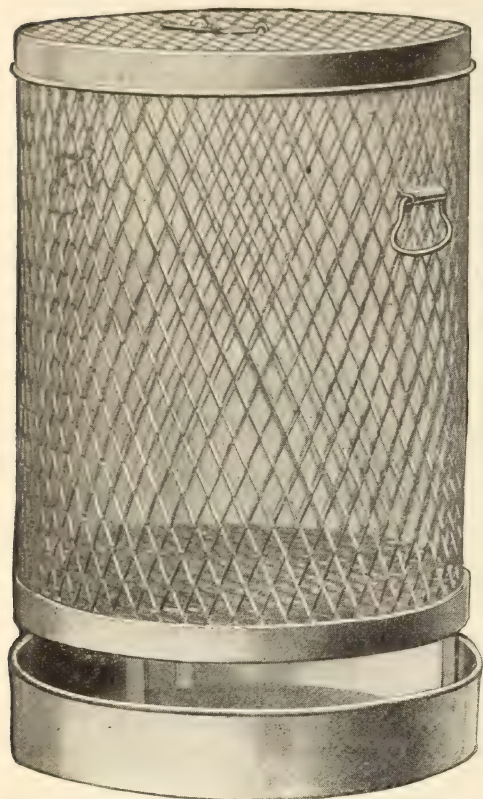
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Should be built **SOLELY**
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The MURDOCK
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**ANTI-FREEZING
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**IS BEST FOR
Parks, Playgrounds, Public
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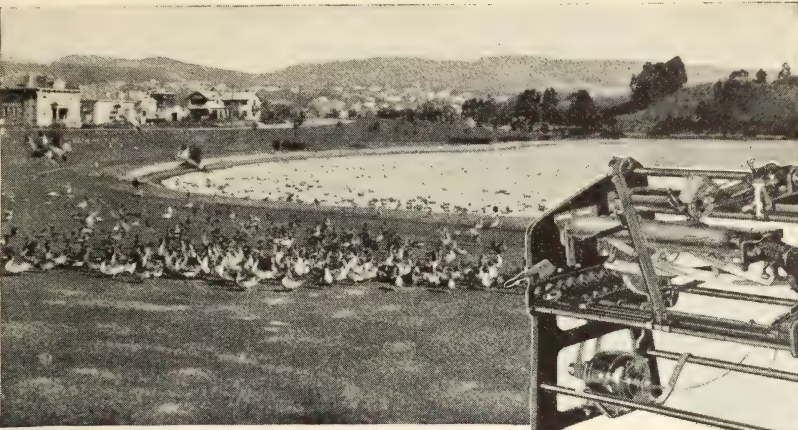
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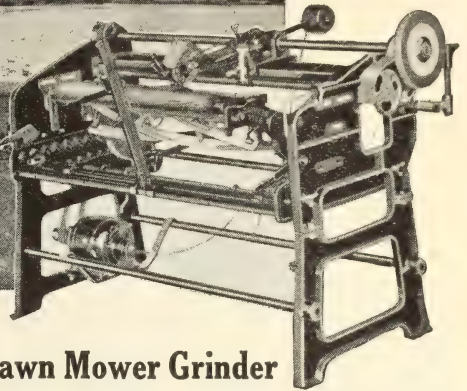
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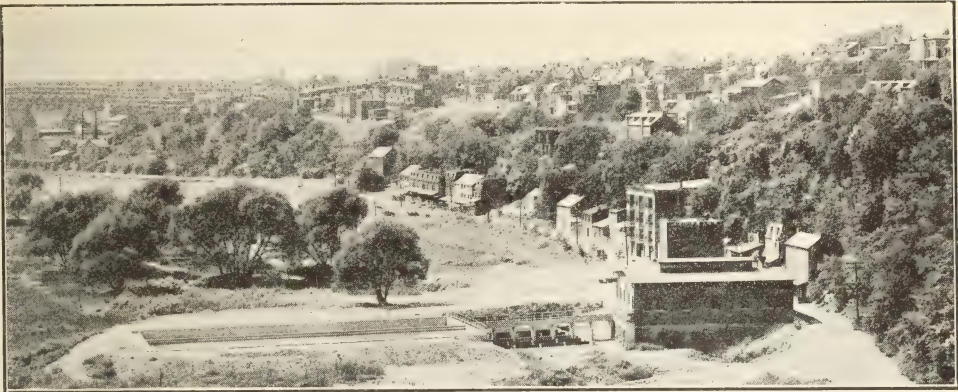
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We grow Ornamental Trees, Shrubs and
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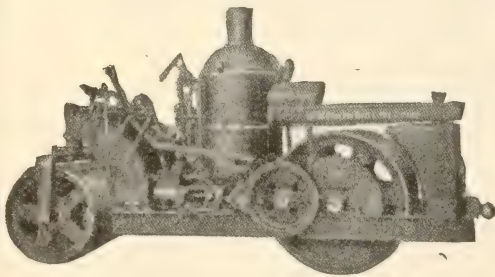
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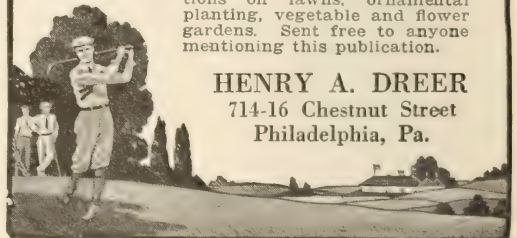
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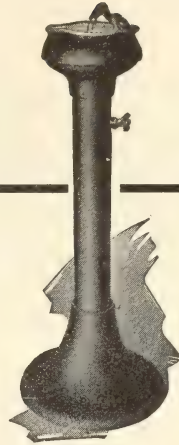
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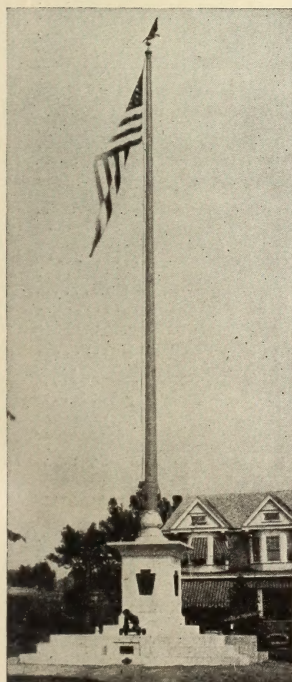
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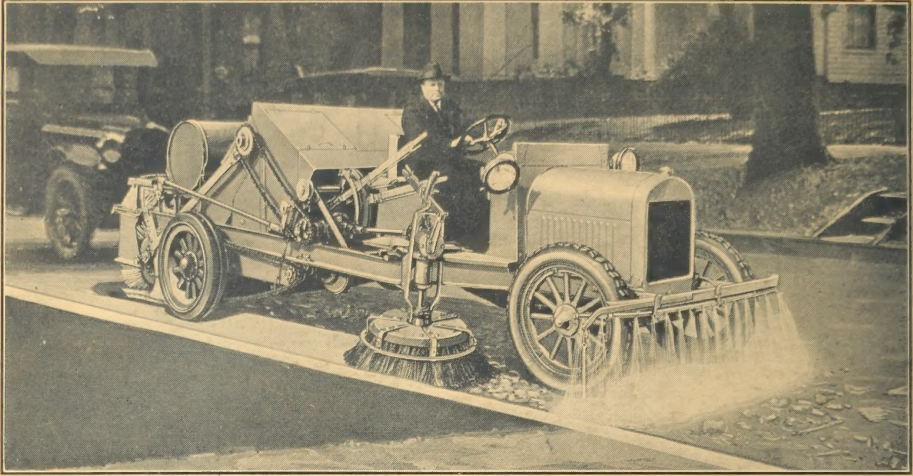
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